2

AIR COMMAND AND STAFF COLLEGE

STUDENT REPORT

THE STUDENT MIX SOFTWARE SYSTEM (SMSS)

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86-2120

"insights into tomorrow"

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The Air Command and Staff College must assign approximately 550 students to 44 groups, called seminars, three times annually. In an effort to equally distribute key student skills throughout the seminars, the faculty spends approximately 200 manhours constructing and modifying student assignments. To reduce this manpower expenditure, a completely new automated system was developed and named the Student Mix Software System (SMSS). This report documents the creation and use of the SMSS which reduced the time required to produce the mix from over 10 days to less than 2 days.

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PREFACE

This report documents the creation and use of the Student Mix Software System (SMSS) for the Z-120 personal computer. SMSS is used at the Air Command and Staff College (ACSC) to assign students to seminars based on user selected rules, and to prepare the required output reports. SMSS reduces the time required to produce a new mix of students from 10 days to 30 minutes, and eliminates 80% of the manual student reassignments required by the old semiautomated system. The SMSS is so successful that it is already in operation; it was used to generate the third mix student assignments for ACSC class of 1986.

The authors wish to publicly acknowledge the assistance and support of many people who patiently answered questions and explained the mix process. Special thanks and recognition is given to Major Rusty Romer, USAF, who provided the inspiration and explanations that led to the finalization of the mix rules. Additionally, we thank Major Ed Williams, USAF, who provided expert guidance, motivation, advice, feedback and served as the ACSC advisor for this project.

Anticipating the possible use by other Air University schools, the SMS was designed to be flexible and to provide the user with the ability to customize the system. Consequently, a copy of the software may be obtained by ordering the Student Mix Software System (SMSS) from Air Command and Staff College, EDO Student Mixer, Maxwell AFB, Al, 36112-5564. Requester must provide a 5 1/4", double sided, double density disk.

This research project is submitted to simplify a process that is key to the learning of all students at Air University, that of the seminar mix. We sincerely hope that future classes will benefit from the balanced seminars which the SMSS is designed to produce.

ABOUT THE AUTHOR

Major Kerneth M. Ritchhart has over twelve years of experience as an intelligence officer and automated data processing manager. He obtained his Masters Degree in Computer Science as a distinguished graduate of the University of Oklahoma in 1978, and completed over half of the requirements for a Doctorate in artificial intelligence and computer science through George Washington University. Ken is experienced in all aspects of computer science, from sophisticated research in artificial intelligence and data base systems to applications software development and maintenance. He has experience in microcomputers, minicomputers, and large computer systems performing: programming, systems analysis, future planning, system acquisition, and software research. He is a 1980 graduate of the Computer Systems Staff Officer School; and in 1984 he was awarded the professional Certificate in Data Processing (CDP). His technical experience includes an extensive knowledge of varied computer hardware systems, and the ability to program in over a dozen different computer languages. Areas of special computer expertise include: artificial intelligence, computer conversion planning, data base systems, data structures, on-line interactive application systems, microcomputers, program management, and automated project management. He is a member of the Association for Computing Machinery (ACM), the Institute of Electrical and Electronic Engineers (IEEE), the Computer Society, and the American Association of Artificial Intelligence (AAAI).

ABOUT THE AUTHOR

Major Robert L. Simmons graduated from Kansas State University, Cum Laude, with a B.S. in Computer Science. After receiving his commission through ROTC, he entered the Air Force as a computer systems operations officer at HQ/MAC AD. While at Scott, he became the chief system analyst for the MAC computerized Aerial Port Documentation and Management System. After receiving a Masters in Business Administration from Southern Illinois University, he was stationed at Hickam AFB as the 619th MASS Data Processing Installation Chief. In 1978, Major Simmons was assigned to the Space Shuttle program at Vandenberg AFB. As the chief of computer integration he directed the installation, checkout and operation of over 100 software packages used by the Space Shuttle Launch computer. Following the Shuttle assignment he was assigned to the Office of the Secretary of the Air Force, Special Projects, as Director of Flight Software Integration. Major Simmons has completed Squadron Officers School by correspondence, Air Command and Staff College, and Air War College by seminar. His decorations include the Air Force Meritorious Service Medal with two oak leaf clusters, the Air Force Commendation Medal with one oak leaf cluster, and the Air Force Achievement Medal. He is married to the former Susan [redacted] of Manhattan, Kansas and they have two children: Ryan and Sean.

TABLE OF CONTENTS

APPENDICES:

LIST OF ILLUSTRATIONS

FIGURES

Chapter One

THE STUDENT MIXING PROBLEM

Mixing students at the Air Command and Staff College (ACSC) and assigning them to wings and seminars does not seem like a terribly difficult task. After all, how difficult can it be to divide approximately 565 students into 44 seminars --you just randomly assign them, right? Unfortunately, it is not quite that simple, there are many rules that must be considered before the first student is assigned.

The basic idea behind these rules is to provide a wide range of experience for each seminar so that the students can be exposed to new and different ideas, cultures, career fields, and sister services. To do this, minority students, females, rated personnel, and students from different components need to be equally distributed throughout the student body. To insure that they have the opportunity to meet new people and make new friends and career contacts, students are not allowed to be assigned to seminars with more than one student with whom they have already served. To expand the number of faculty instructors who have the opportunity to rate each individual, the students are reassigned to different seminars each mix. Since the students present a major portion of the lessons and lead the seminars, it is also important to provide individuals to each seminar who have experience in the areas being studied such as staff communications; the Planning, Programming and Budgeting System (PPBS); acquisition and logistics; strategic operations; and tactical operations. There are also special rules that apply to international officers (IO's), and to part time students like the Squadron Officers School (SOS) staff, and Associate Research Institute (ARI) students. Obviously, a proper student mix requires the consideration of many factors.

All of these factors combine to make the mixing of students a difficult and time consuming task--especially by mix three when several of the rules have a chance to conflict with each other, and some of the seminars are deleted due to the departure of the IO's and the reassignment of some faculty members. Nor is the job over when the students are mixed;

reports must still be generated for the wing chiefs, and faculty instructors. Other reports, containing information on the class composition, are required by Air University.

According to the sponsor of this project, the ACSC mix master, the old Seminar Automatic Mixer (SAM) system on the Honeywell computer at Gunter AFS, was slow (seven to ten day turnaround); cumbersome (difficult to get any changes made); and unresponsive (it violated most of the rules currently required for a good mix). The output from the Honeywell normally required extensive reworking by the school mix master and by the wing mix masters involving approximately two weeks of manual work for each mix. It also took nearly two months, before the school began, for the school mix master to obtain the student data, process it by hand, manually enter it into the system, and produce the initial reports. To try and reduce the work load from this semiautomated mixing svstem, the mix master requested an ACSC student project to see if a software system could be created for the Z-120 personal computers at the Air Command and Staff College to efficiently mix the students and produce the required reports. The result of this student project was the Student Mix Software System (SMSS).

DETERMINING_THE_SMSS_REQUIREMENTS

To determine the personnel factors required to properly mix the students, the ACSC mix master was repeatedly interviewed on existing AU/ACSC practices and policies. As a result of these interviews, we developed five hand written pages of rules, heuristics, and desired factors to be used in mixing the students and selecting class leaders. This information was supplemented by reviewing the related Air University and Air Command & Staff College regulations dealing with seminar organization, rank, and procedures. The resulting rules and personnel factors were then used as the basis on which SMSS was built. Before deciding to build a new software system completely from scratch, the old code from the Honeywell system was examined.

The authors reviewed the program code from the Honeywell to see if it could be used or modified to obtain the desired results. Unfortunately, this code was designed for a batch system and lacked any user interfaces or error checking procedures. The code was also extremely limited in scope and was not flexible enough to adapt to the many rules and restrictions needed for a good mix. The decision was consequently made to start from scratch and write a completely new software system, starting with the selection of the necessary software tools.

The decision on the software support tools to be used in creating and supporting SMSS was constrained by the nature of the hardware on which SMSS was intended to operate. The ACSC mix master's Z-120 was equipped with 256KB of memory, a 10 MB hard disk, the MS-DOS operating system, and the CONDOR Relational Data Base Management System (DBMS). The Z-120 was also equipped with the MICROSOFT FORTRAN, COBOL, interpreted ZBASIC, and the compiled ZBASIC programming languages. A review of the CONDOR DBMS by the authors found that it was able to provide all of the basic functions needed by SMSS with the exception of direct calls to separate executable subroutines. Because of CONDOR's general suitability, the long lead time required to obtain a new DBMS, and the time constraints of this project, the decision was made to continue using CONDOR. A review of the programming languages available, resulted in the decision to use ZBASIC. ZBASIC had several advantages over FORTRAN and COBOL. The interpreted ZBASIC simplified debugging and program development with its interactive support environment. Once the programs were developed and debugged they could be compiled to gain the advantage of faster execution and smaller memory requirements. The memory constraint was one of the major reasons for not using COBOL as the SMSS programming language. While COBOL is an excellent language for file manipulation and report generation, its large memory requirements made it unsuitable for SMSS with its extensive code requirements and with the Z-120 which had only 256KB of memory. FORTRAN was considered for the development of the mixing algorithm, but its limited character string and file manipulation facilities made it unsuitable for SMSS with its interactive user requirements. Consequently, the final support tools selected for SMSS were the MICROSOFT ZBASIC programming language and the CONDOR DBMS.

DESIGNING_SMSS

After determining the mixing constraints and selecting the support tools, an interactive user prototype of SMSS was built using ZBASIC and CONDOR. This prototype permitted the ACSC mix master to see exactly what he would be using, and permitted him to run through the menus and display screens. As a result of his interaction with the prototype, he changed several of his criteria, and asked for additional information to be displayed in SMSS. The prototype formed the basis for the final development and coding of SMSS and permitted misunderstandings to be worked out before extensive coding was completed. It also permitted the user to refine his requirements and to contribute to the overall system design.

The SMSS hardcopy report requirements were determined by reviewing the ACSC Supplement to Air University Regulation 171-1, Student Statistical Reporting; by examining all current reports; and by interviewing the ACSC mix master about additional reports that might be needed. The report facilities of CONDOR were selected to generate these alpha and statistical reports since the user facilities in CONDOR minimized the amount of new code required.

This chapter introduced the problems which SMSS was designed to solve, and the basic methodology used in researching and designing SMSS. Chapter two provides an SMSS system overview describing the hardware and software environments and the information flow between the different data files and the various programs or CONDOR command files. Chapters three through five provide the user with guidance on how to run the preprocessing (data preparation), mixing, and post processing (report generation) programs. Finally, chapter six provides conclusions about SMSS, how well it operates in comparison to the old system, and what improvements could be made to SMSS to make it better.

Chapter Two

SYSTEM OVERVIEW

The Student Mix Software System (SMSS) gives the user the capability to automatically create a mix of students that fits a set of user definable criteria. Additionally, the user retains the option to selectively override the assignments created by SMSS. This capability is provided by a package of computer hardware, software, and procedures. This chapter will describe the hardware and software needed to execute the system and explain the information flow throughout the input, preprocessing, mixing, and post processing phases of the system. Subsequent chapters will describe specific software components and user actions. Prior to describing the four phases, a brief description of the hardware and software environment is in order.

HARDWARE

The Z-120 personal computer is in wide use throughout the Air Force, particularly Air University, and possesses significant computing capability. Consequently, the SMSS is designed to operate within this capability. The specific configuration includes a 10 megabyte hard disk, a 132 column printer, and 256KB of internal random access memory. This hardware is the minimum set needed to execute the SMSS support software packages.

SOFTWARE

The SMSS is designed to make extensive use of existing software packages. Consequently, it only executes with the support of the CONDOR III Relational Data Base Management System and the popular MS-DOS operating system. In addition to these packages, the ZBASIC programming language is used to create the mix routine. Therefore, to maintain or modify the current system, the ZBASIC compiler and related support software is needed. This brief description of the supporting software reveals that the SMSS is a combination of computer programs that have been linked together to provide the user with a flexible, convenient system.

PHASE DESCRIPTION

The linkage and relationship of the four SMSS phases (see figure 1.) can best be described from the user's viewpoint. In the input phase, the user will enter the student data into the CONDOR system and create the OMEGA and BETA data bases. After this phase is complete, the user will select, prepare, and pass the data to the mix routine. The mix phase will prompt the user to select the mix criteria and will assign the students to seminars. The final phase allows the user to view the assignment and make any desired changes. Additionally, reports will be prepared for distribution. As we discuss each phase, the purpose will be identified and a description of support software will be included.

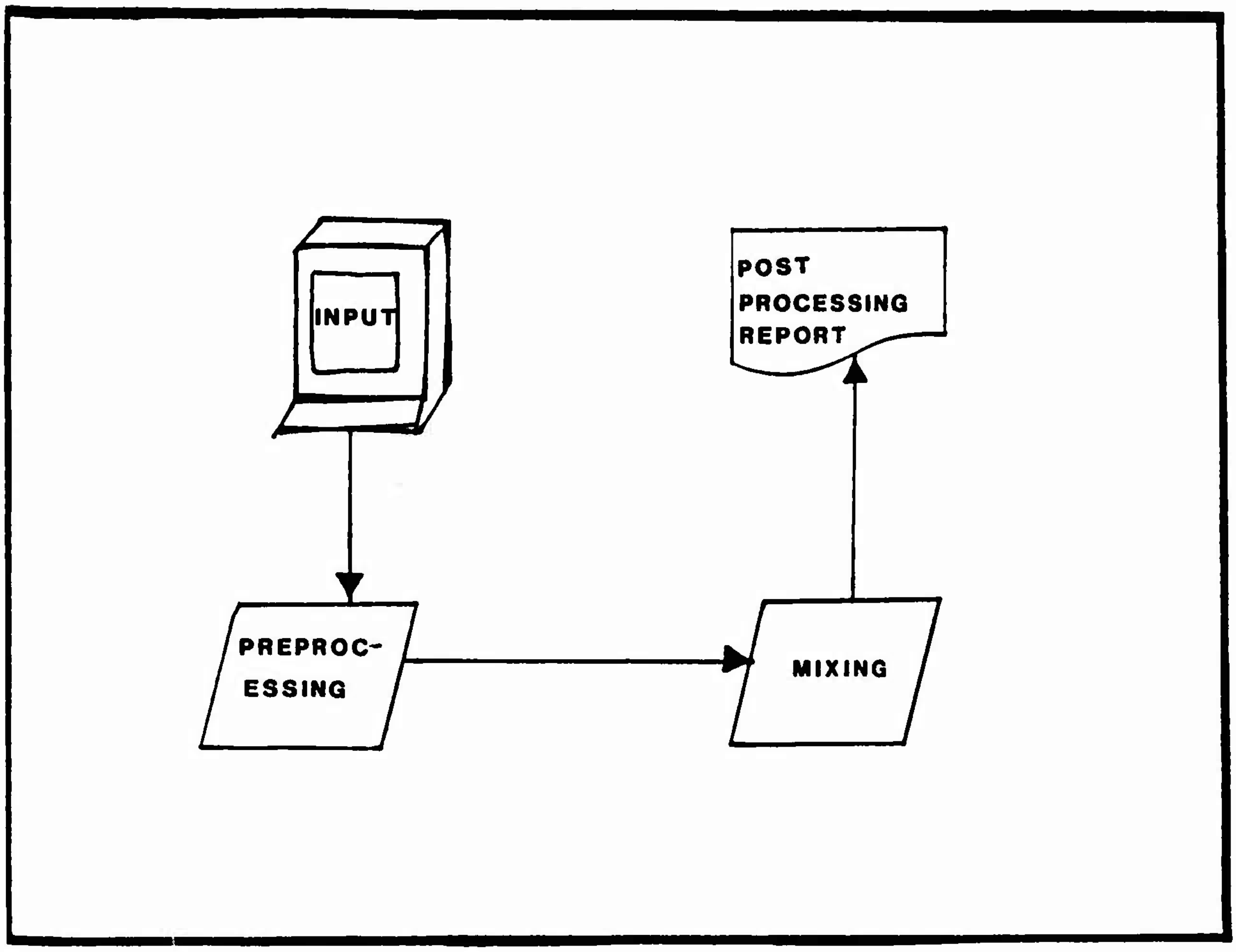


Figure 1. System Overview

INPUT PHASE

The input phase (see figure 2) uses the general capabilities of CONDOR III. By utilizing this data base management system, a flexible input capability has been provided for the user.

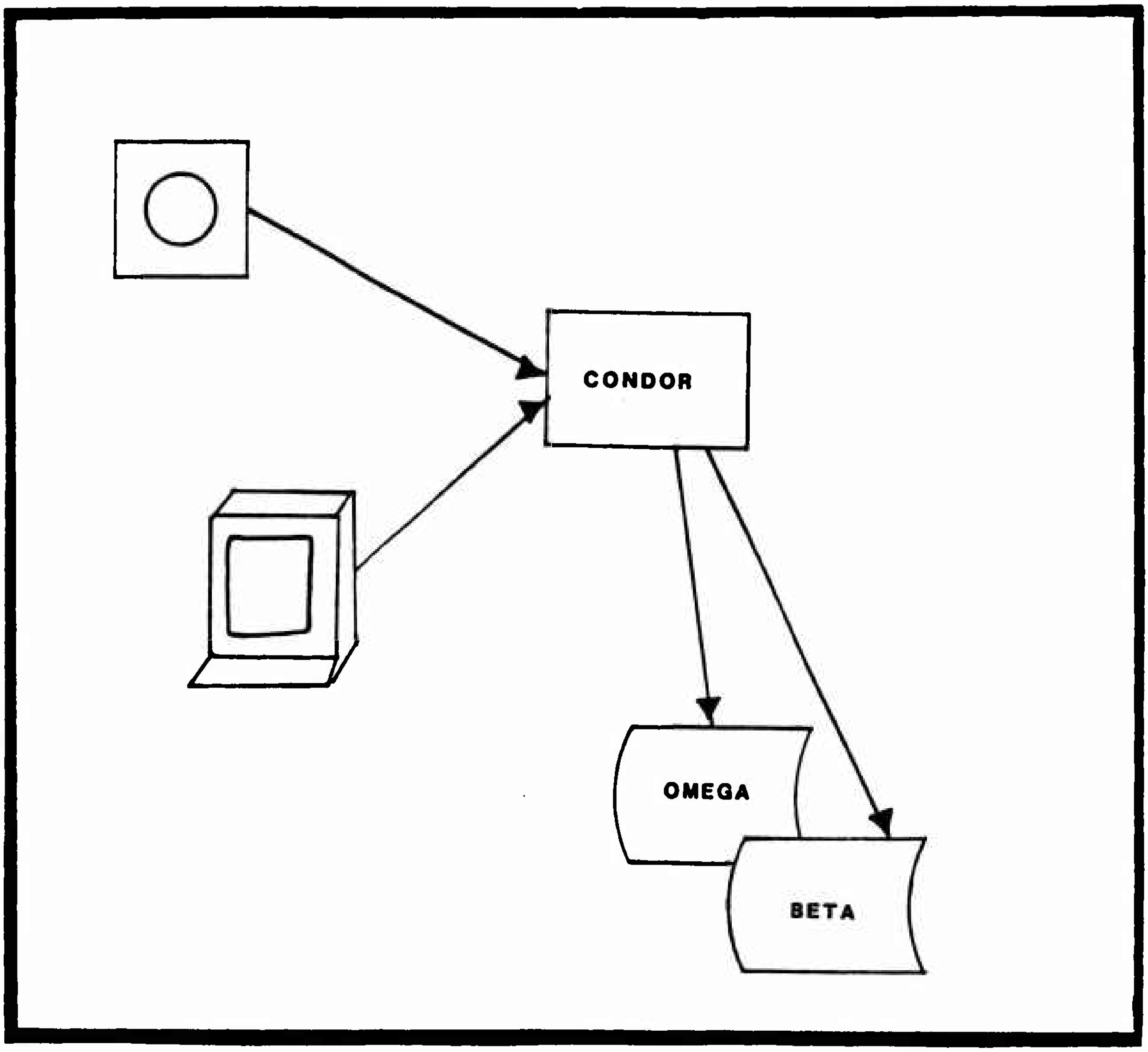


Figure 2. Input Phase

Purpose

The purpose of the input phase is to insert the student data into two CONDOR data bases. The first data base is named OMEGA and is designed to contain key personnel and class assignment information on students attending Air Command and Staff College. The second data base is named BETA and contains personnel data that must be reviewed and updated to accurately reflect student skills or characteristics.

Description

The input phase, through the basic capabilities of CONDOR, places data in a data base either manually (via the ENTER command) or by reading a file (via the READ command). For additional information on these commands, see the CONDOR user manual. The information placed in the OMEGA data base is of critical importance to the entire process and must adhere to the values identified in appendix A. Upon the completion of the input phase, all students attending ACSC and their personnel data will be loaded and confirmed as correct by the user. Additionally, the specific skill data must be entered into the BETA file. When these actions are completed the input phase is complete and we are ready for the preprocessing phase.

Preprocessing Phase

The preprocessing phase (see figure 3) makes extensive use of CONDOR's advanced capabilities to minimize the user's involvement. These capabilities present the user with help screens to provide a road map through the process and rely heavily upon command files (a sequence of previously programmed commands) to generate the correct data.

Purpose

The purpose of the preprocessing phase is to create a repeatable, consistent, and simplified version of student data that can be transferred to the mix procnss. Additionally, it creates the interface file between CONDOR and the mix process.

Description

The overall process extracts student data from the OMEGA file, simplifies the data, and prepares the data for the mix routine. The phase begins by extracting key student data from the OMEGA file and storing the information in a temporary file called TEST1.

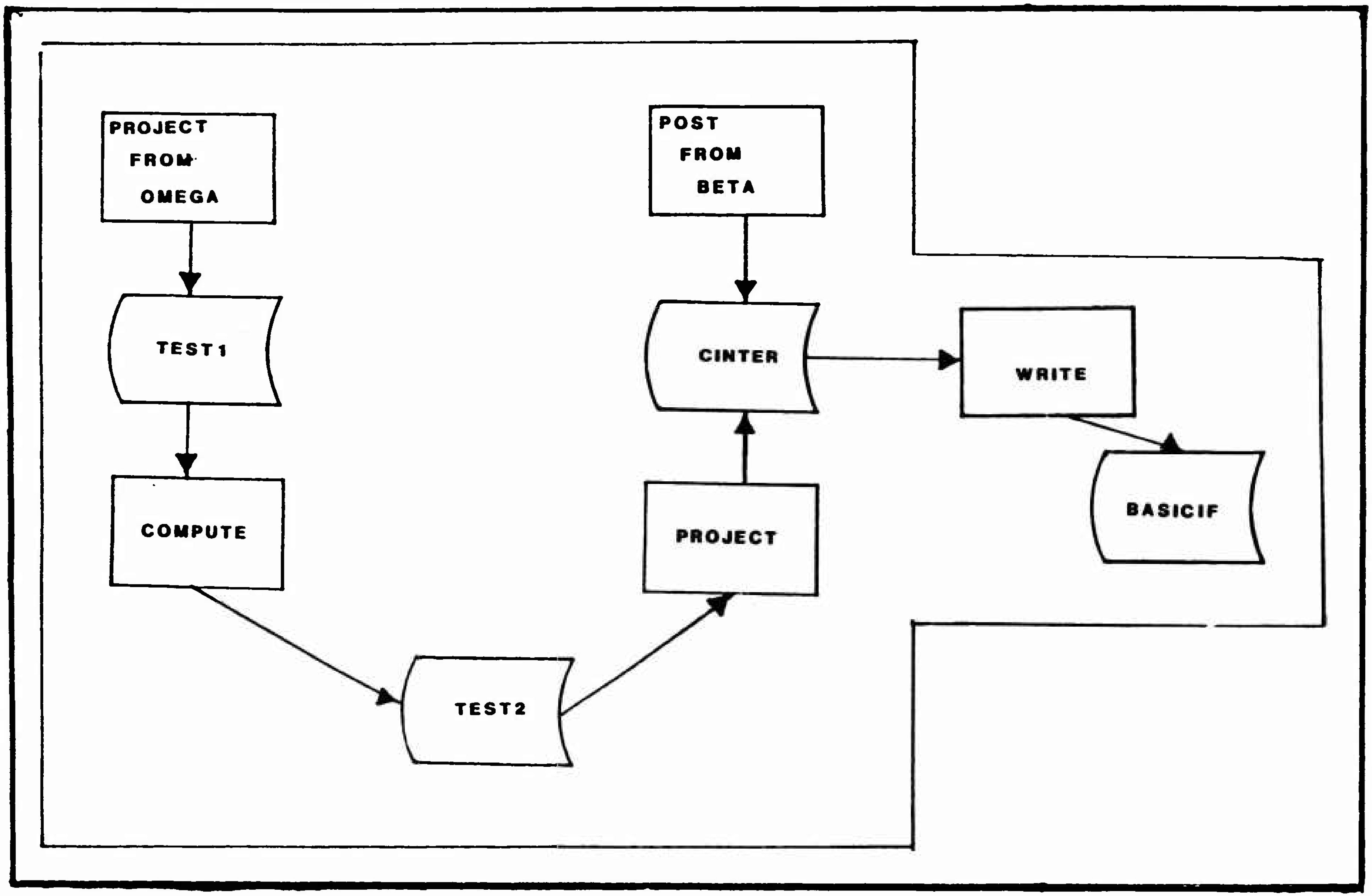


Figure 8. Preprocessing Phase

Since the mix process expects a simplified version of the data, a series of one character yes/no fields must be added to each record. This is accomplished by reorganizing the TEST1 data base. After adding the additional fields, the records are examined and the critical parameters are computed and stored in the newly created fields. The file is then read into a file called TEST2 and sorted by date of rank.

The next step in the preprocessing phase is to strip out redundant information. This reduction is accomplished by projecting the key mixing criteria from TEST2 into a file called CINTER. At this point, special student skill data in the BETA file is added to CINTER by CONDOR's post process. The final step in this phase writes the interface file BASICIF. This file is written in a form that can be easily read by the mixing routine.

Mixing Phase

The mixing phase (see figure 4) of the system is the heart of the process. The complexity of the routine is beyond the scope of CONDOR's capability, so a special routine compiled in ZBASIC has been created.

Purpose

The purpose of the mix routine is to assign students to classes or seminars, based upon user selectable criteria. Through the user set criteria, various skills and backgrounds can be emphasized, and students with these skills can be evenly distributed.

Description

The mix phase first prompts the operator to select the criteria and the mix to be assigned. Based upon this information, the student file is read and the total number of students possessing the selected criteria tabulated. Next, the seminar leaders and assistant seminar leaders are assigned. If it is the first mix, the class commander and senior ranking officer for each wing are selected. The next step is to assign students to the various classes or seminars, based upon the criteria. The goal of the assignment algorithm is to equally distribute the critical skills within limitations of specific rules. After completing the assignment, a summary report is created which displays the number of students possessing the selected characteristics by seminar. Finally, the results are written to BASICOT. At this point, the post processing and report generation phase begins.

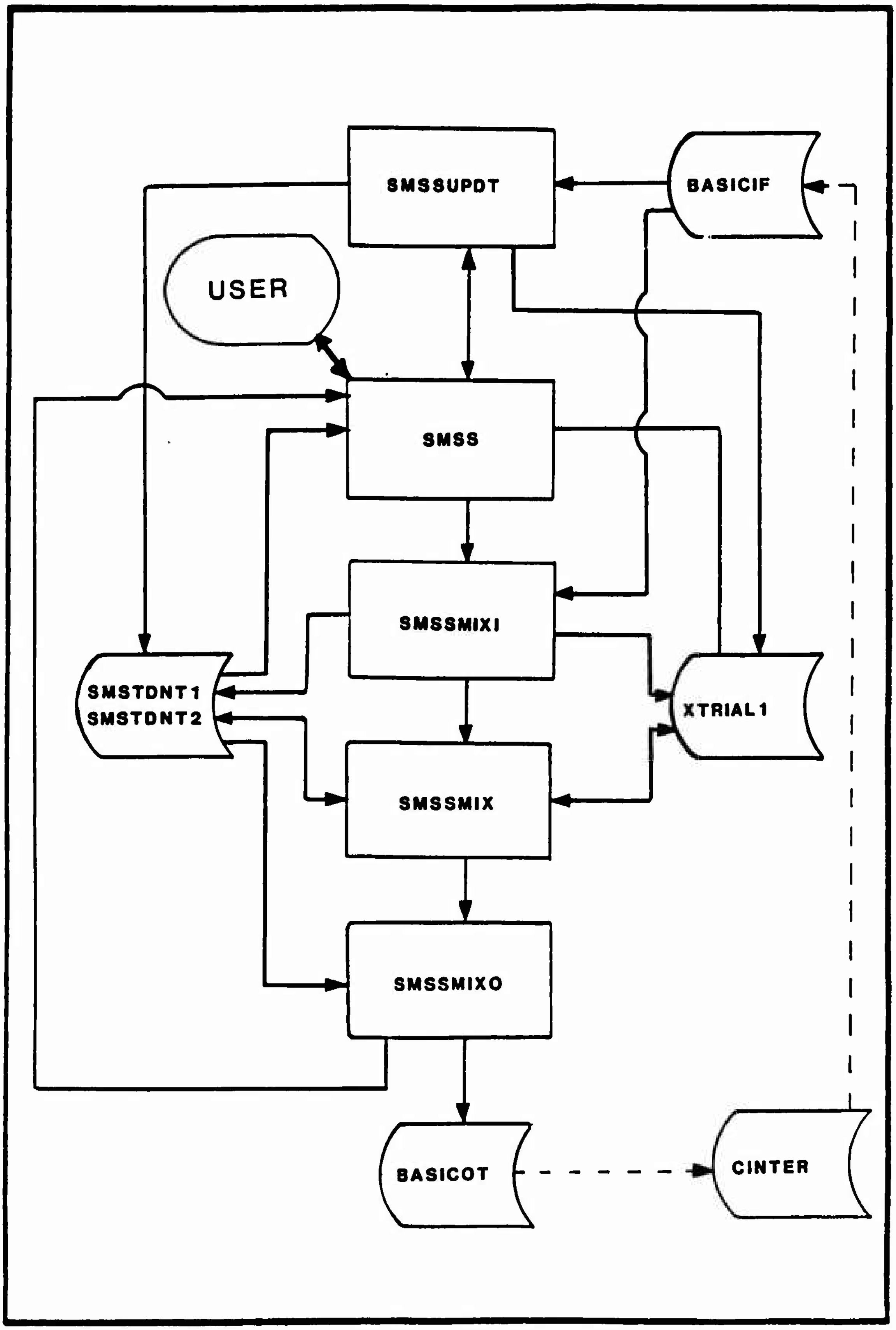


FIGURE 4. MIXING PHASE

Post Processing and Report Generation Phase

This phase (see figure 5) is the last phase and uses the capability of CONDOR to produce the report documents.

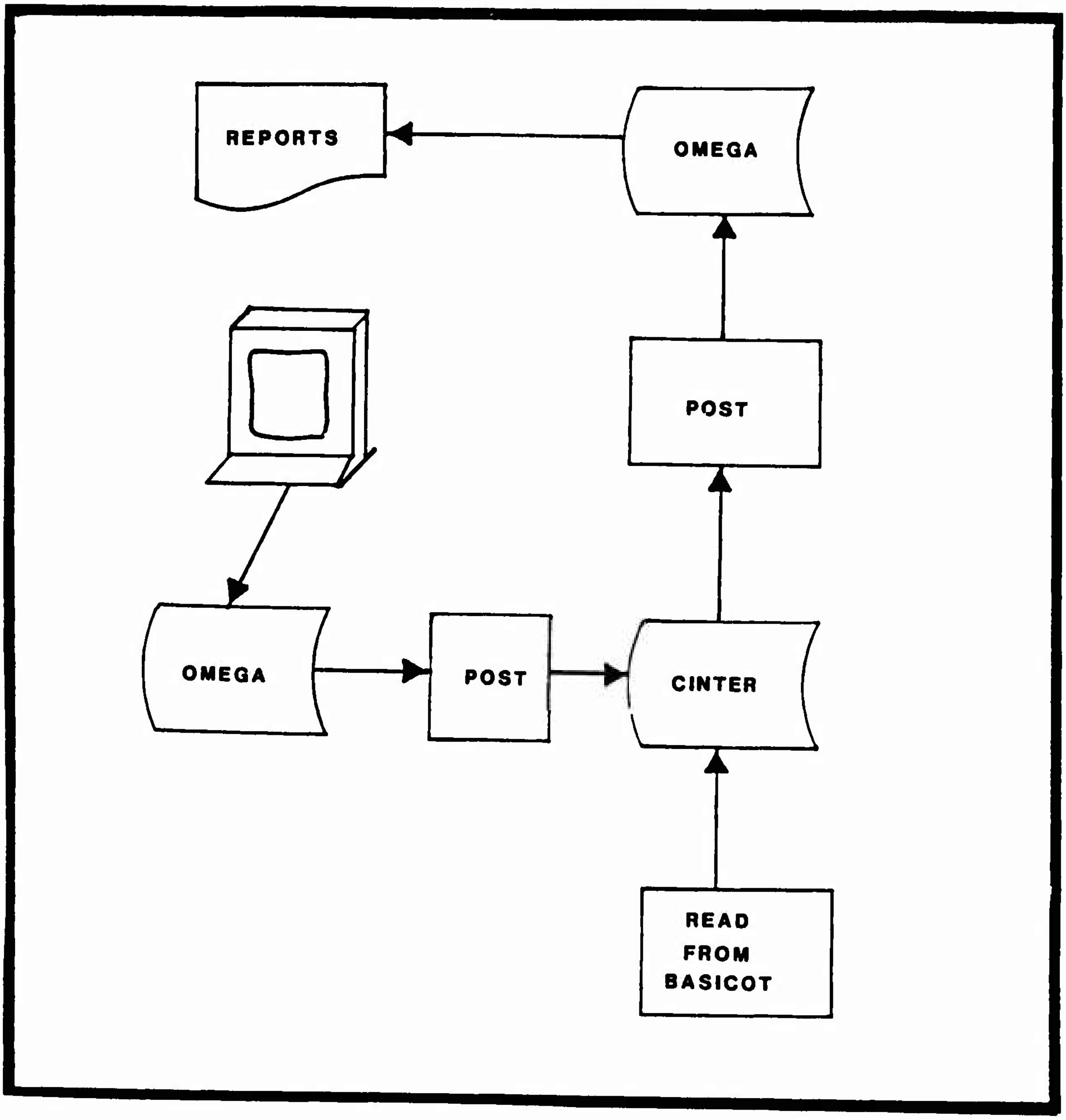


Figure 5. Post Processing Phase

Purpose

The purpose of the last phase is to review and manually modify any assignments, finalize the assignments, and to generate reports for distribution.

Description

The first task is to read student records, including their seminar assignment data, from the BASICOT file back to CINTER. This action brings the mix assignment data back into CONDOR for subsequent processing. The next step updates OMEGA with the tentative assignment information. The user has the option to select seven different report formats. After a review of the data, the user can change the OMEGA data base by utilizing CONDOR's UPDATE command. At this point, the responsibility to maintain skill balance is completely controlled by the user. Once the user is satisfied with the assignments, a final set of reports can be run and the final assignments transferred to the CINTER data base. This last step will enable mix two and subsequent mix processing to skip the preprocessing phase.

The system overview was designed to give a user a brief description of the Student Mix Software System. The description followed the input, process, and output steps that are inherit in all automated systems. As the system was described, the uses of the data base management system, CONDOR III, and the computer language, ZBASIC, were identified. Additionally, the purpose of each phase was explained to aid the user in understanding the system. The next chapters will cover the user's actions necessary to complete a mix process.

Chapter Three

USER INSTRUCTIONS FOR PREPROCESSING PHASE

These instructions are written assuming that the user or operator is familiar with the Z-120 computer. He/She should be able to operate the equipment and possess a working knowledge of the MS-DOS operating system. Additionally, the operator should be familiar with the CONDOR III Data Base Management System.

The SMSS system was developed to minimize user actions. However, if problems develop or minor modifications are needed, a knowledgeable user is essential. To assist the knowledgeable user, the CONDOR command files and the basic source code in appendix B and D contain comments to explain the program logic. With this caveat about appropriate user knowledge, the following instructions should be sufficient to successfully execute the preprocessing phase of the SMSS.

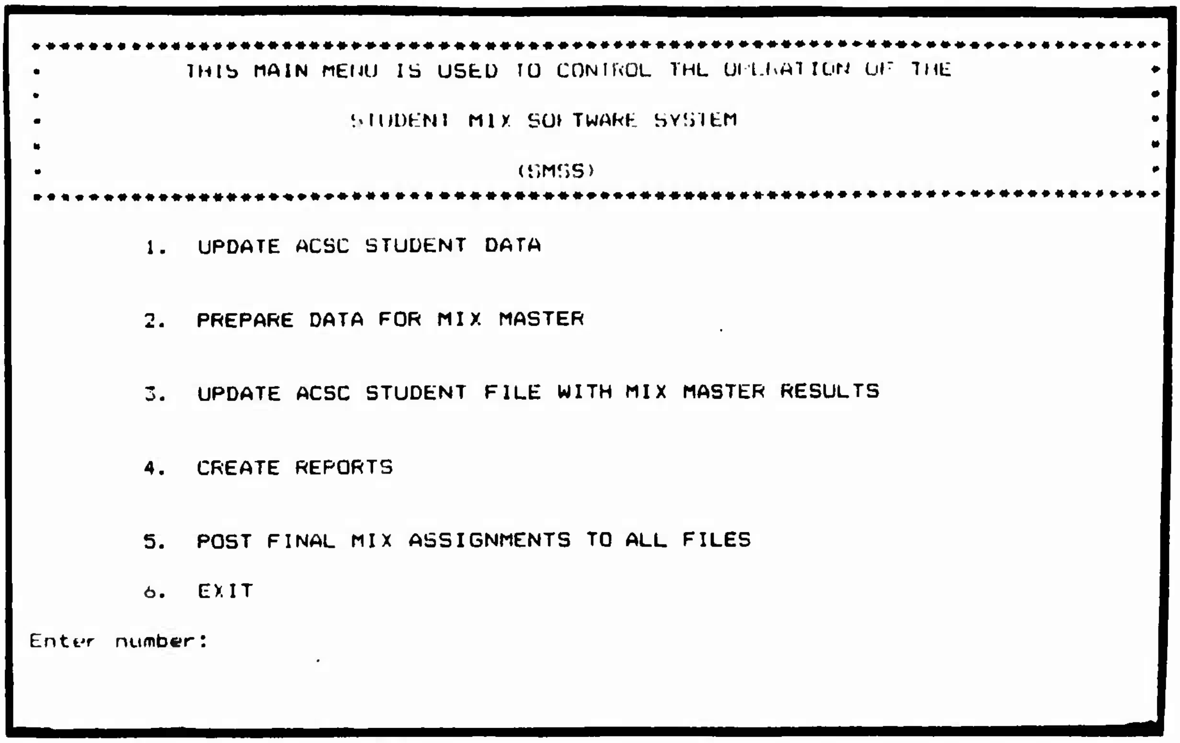
The preprocessing phase should not be initiated until the OMEGA and BETA data bases have been loaded and verified. The preprocessing phase must be completed once per student body or class. Normally, the process will be executed just before the first mix. After completing the entire mix process, all critical information will be posted to OMEGA and BETA. Consequently, the preprocessing routines need not be executed again, unless some information within OMEGA or BETA is changed.

The procedure to execute the preprocessing phase is straight forward. As mentioned before, help screens have been developed to aid the user. The following steps are described to demonstrate the actions the user must take.

Step 1. After entering CONDOR, the main help menu should be called.

Enter: HELP SMSS <CR>.

The following menu is displayed:



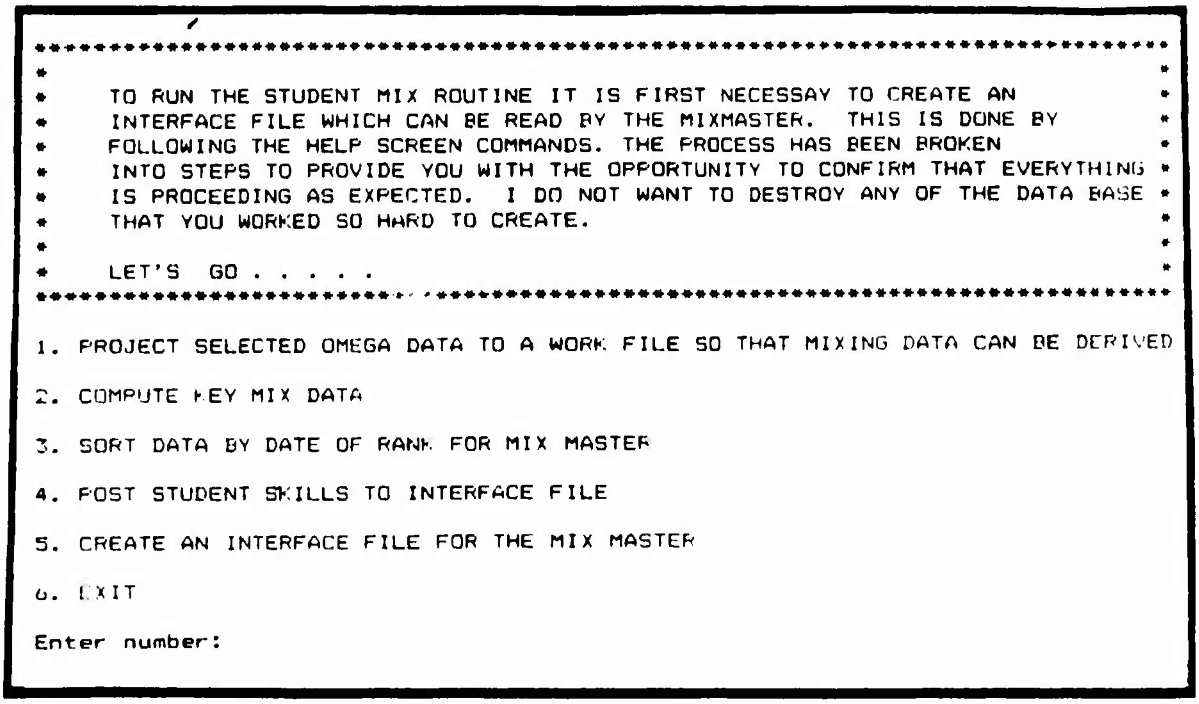
```
*************************************************************************************
*            THIS MAIN MENU IS USED TO CONTROL THE OPERATION OF THE                 *
*                                                                                   *
*                       STUDENT MIX SOFTWARE SYSTEM                                 *
*                                                                                   *
*                                  (SMSS)                                           *
*************************************************************************************

          1.  UPDATE ACSC STUDENT DATA


          2.  PREPARE DATA FOR MIX MASTER


          3.  UPDATE ACSC STUDENT FILE WITH MIX MASTER RESULTS


          4.  CREATE REPORTS


          5.  POST FINAL MIX ASSIGNMENTS TO ALL FILES

          6.  EXIT

Enter number:
```

Figure 6. SMSS Help Menu

<u>Step 2.</u> To initiate preprocessing phase, select item two.

Enter: 2 <CR>

The following menu is displayed:



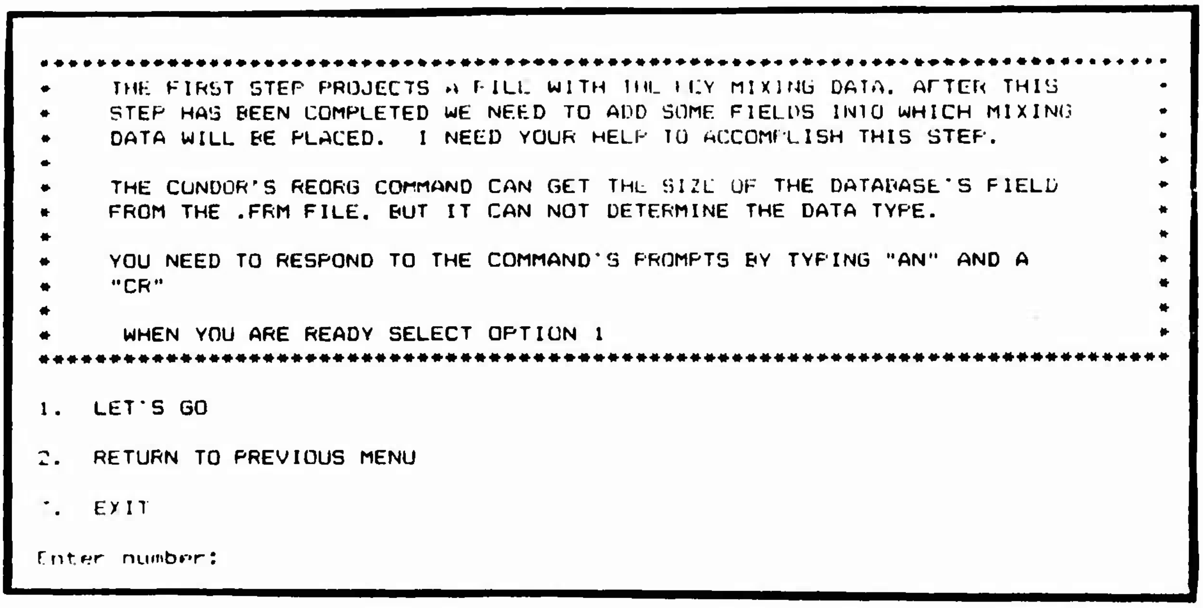
```
*****************************************************************
*                                                               *
*    TO RUN THE STUDENT MIX ROUTINE IT IS FIRST NECESSAY TO CREATE AN      *
*    INTERFACE FILE WHICH CAN BE READ BY THE MIXMASTER.  THIS IS DONE BY   *
*    FOLLOWING THE HELP SCREEN COMMANDS. THE PROCESS HAS BEEN BROKEN       *
*    INTO STEPS TO PROVIDE YOU WITH THE OPPORTUNITY TO CONFIRM THAT EVERYTHING *
*    IS PROCEEDING AS EXPECTED.  I DO NOT WANT TO DESTROY ANY OF THE DATA BASE *
*    THAT YOU WORKED SO HARD TO CREATE.                                    *
*                                                               *
*    LET'S  GO . . . . .                                                   *
*****************************************************************

1. PROJECT SELECTED OMEGA DATA TO A WORK FILE SO THAT MIXING DATA CAN BE DERIVED

2. COMPUTE KEY MIX DATA

3. SORT DATA BY DATE OF RANK FOR MIX MASTER

4. POST STUDENT SKILLS TO INTERFACE FILE

5. CREATE AN INTERFACE FILE FOR THE MIX MASTER

6. EXIT

Enter number:
```

Figure 7. STUMIX Help Menu

Step 3. The process outlined in the help menu must be completed in sequence in order to produce an interface file for the mix routine.

Enter: 1 <CR>

The following menu is displayed:



```
****************************************************************************
*    THE FIRST STEP PROJECTS A FILE WITH THE KEY MIXING DATA. AFTER THIS   *
*    STEP HAS BEEN COMPLETED WE NEED TO ADD SOME FIELDS INTO WHICH MIXING  *
*    DATA WILL BE PLACED.  I NEED YOUR HELP TO ACCOMPLISH THIS STEP.       *
*                                                                          *
*    THE CONDOR'S REORG COMMAND CAN GET THE SIZE OF THE DATABASE'S FIELD   *
*    FROM THE .FRM FILE. BUT IT CAN NOT DETERMINE THE DATA TYPE.           *
*                                                                          *
*    YOU NEED TO RESPOND TO THE COMMAND'S PROMPTS BY TYPING "AN" AND A     *
*    "CR"                                                                  *
*                                                                          *
*     WHEN YOU ARE READY SELECT OPTION 1                                   *
****************************************************************************

1.  LET'S GO

2.  RETURN TO PREVIOUS MENU

3.  EXIT

Enter number:
```

Figure 8. PROJECT Help Menu

Step 4. As indicated by the menu, some help from the operator is required. CONDOR's REORG command requires the operator to define the data type. The SMSS will initiate the process and do most of the work; however, the operator must provide the requested information.

Enter: 1 <CR>

The process will take approximately 15 minutes.

Step 5. After the process is complete, the menu will reappear. To continue with the preprocessing phase, return to the previous menu.

Enter: 2 <CR>

The main preprocessing menu (see step 3) will be displayed.

Step 6. Continue the process by initiating the commands in sequence.

Enter: 2<CR>

This phase of the process will take about 15 minutes. Then the menu will reappear.

Step 7. Continue the process.

Enter: 3<CR>

This step of the process will take about 5 minutes and will conclude by displaying the now familiar menu.

Step 8. Continue the process.

Enter: 4<CR>

This step will take about 10 minutes and will conclude by displaying the menu.

Step 9. Continue the process.

Enter: 5<CR>

This step will take about 20 minutes and will conclude by displaying the menu.

Step 10. At this point the BASICIF file has been created and the next phase of the system can be initiated. Consequently, we should return to the system level and execute the SMSS basic program.

Enter: 6<CR>

The CONDOR prompt should appear.

Step 11. To return to the MS-DOS operating system:

Enter: SYSTEM <CR>

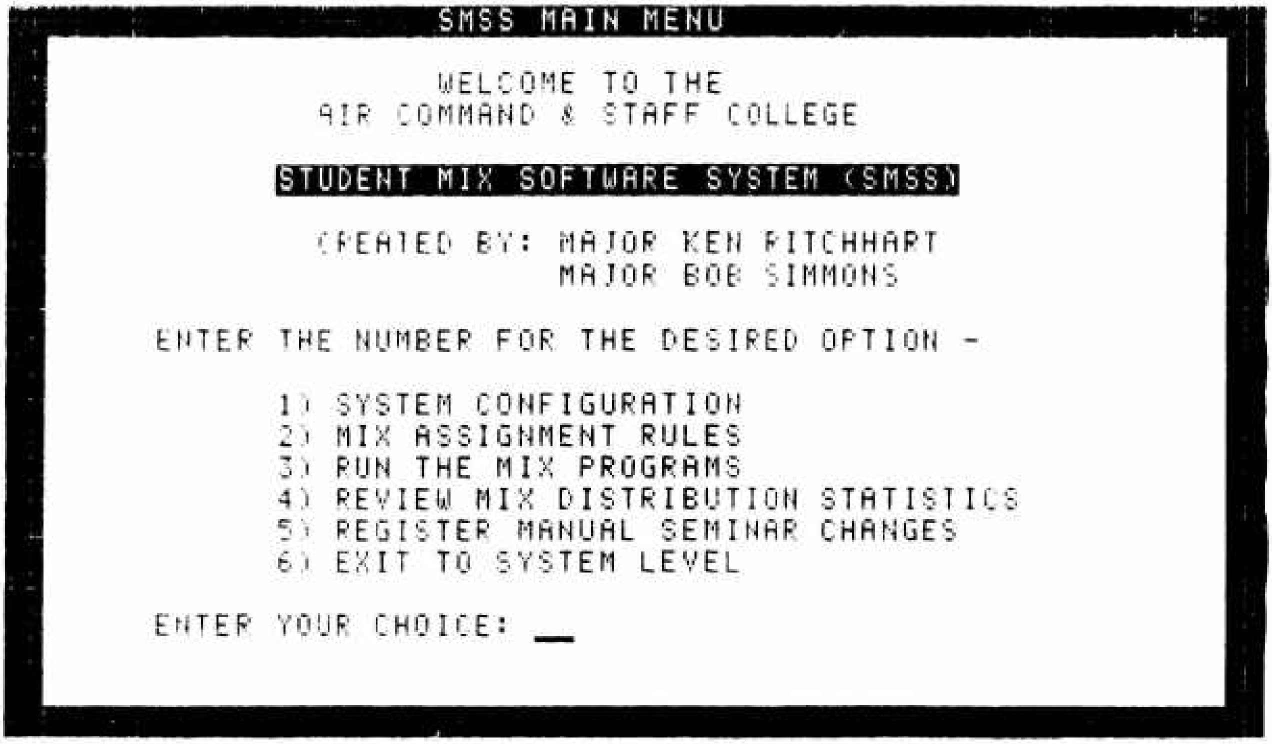
The system prompt will appear.

Chapter Four

RUNNING THE STUDENT MIX

MAIN_MENU

The Student Mix Software System is started by entering E:SMSS in response to the system prompt. This will bring up the main system menu allowing you to configure the system, review or change the mix rules, run the mix subroutine, review the mix distribution statistics, register manual changes, or return to the system level. An example of the main menu is shown below. You should make your choice by entering 1 thru 5 and then pushing the "RETURN" key.

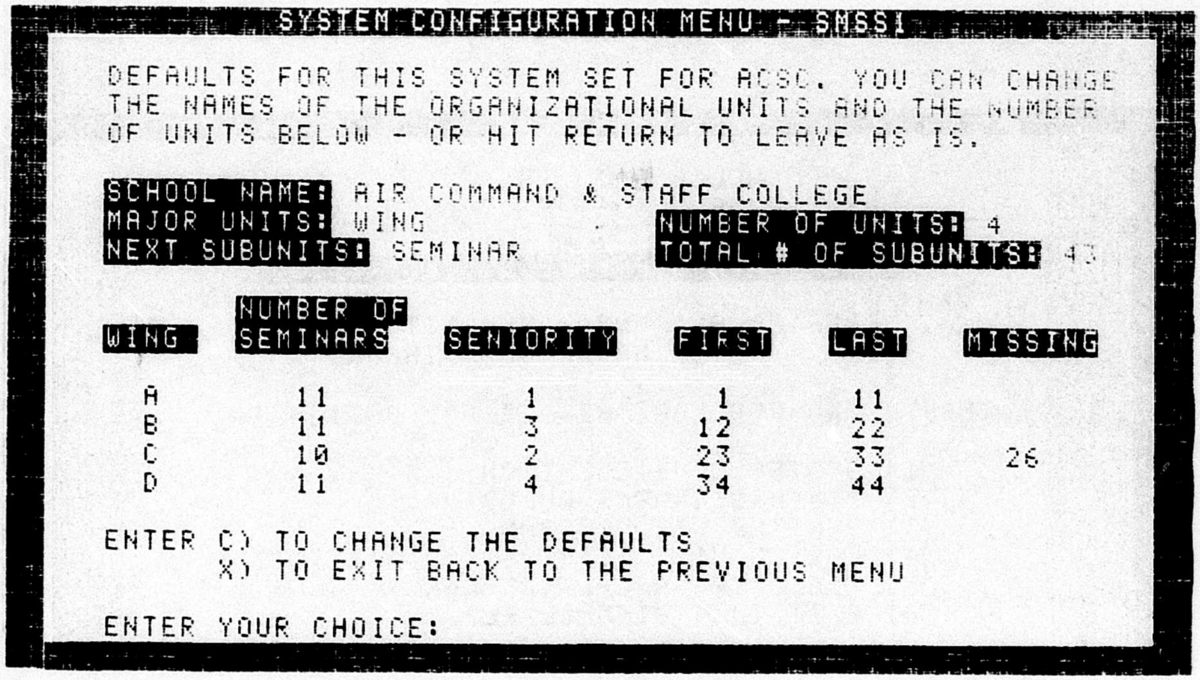


```
                    SMSS MAIN MENU

                   WELCOME TO THE
              AIR COMMAND & STAFF COLLEGE

          STUDENT MIX SOFTWARE SYSTEM (SMSS)

            CREATED BY: MAJOR KEN RITCHHART
                        MAJOR BOB SIMMONS

      ENTER THE NUMBER FOR THE DESIRED OPTION -

          1) SYSTEM CONFIGURATION
          2) MIX ASSIGNMENT RULES
          3) RUN THE MIX PROGRAMS
          4) REVIEW MIX DISTRIBUTION STATISTICS
          5) REGISTER MANUAL SEMINAR CHANGES
          6) EXIT TO SYSTEM LEVEL

      ENTER YOUR CHOICE: __
```

Figure 9.   SMSS Main Menu

SYSTEM_CONFIGURATION

This menu allows you to configure the system by specifying the name of the school, entering the name of the major units (ie. WINGS, FLIGHTS, ETC), the number of major units (up to 5), the name of subunits (ie. SEMINARS, SECTIONS, ETC), and the total number of subunits (up to 60). If you do not wish to change the default values simply hit "RETURN" and go on to the next selection field. You will then have the opportunity to enter the individual wing names, the number of subunits (seminars) in each wing, the seniority assigned to each wing, the first seminar in the wing, the last seminar in each wing, and any missing seminars which have been deleted for this mix.

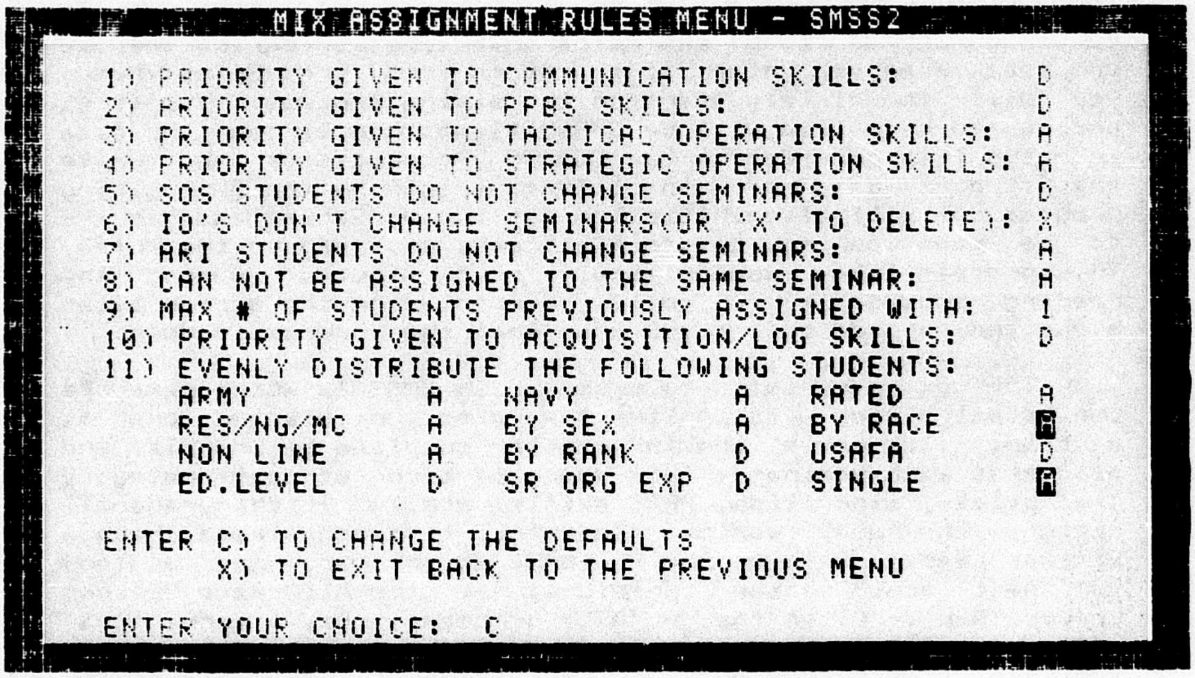


```
              SYSTEM CONFIGURATION MENU - SMSS

 DEFAULTS FOR THIS SYSTEM SET FOR ACSC. YOU CAN CHANGE
 THE NAMES OF THE ORGANIZATIONAL UNITS AND THE NUMBER
 OF UNITS BELOW - OR HIT RETURN TO LEAVE AS IS.

 SCHOOL NAME: AIR COMMAND & STAFF COLLEGE
 MAJOR UNITS: WING              NUMBER OF UNITS: 4
 NEXT SUBUNITS: SEMINAR         TOTAL # OF SUBUNITS: 43

        NUMBER OF
 WING   SEMINARS    SENIORITY    FIRST   LAST   MISSING

  A       11           1           1      11
  B       11           3          12      22
  C       10           2          23      33      26
  D       11           4          34      44

 ENTER C) TO CHANGE THE DEFAULTS
       X) TO EXIT BACK TO THE PREVIOUS MENU

 ENTER YOUR CHOICE:
```

Figure 10. System Configuration Menu

MIX_ASSIGNMENT_RULES

This menu is used to select which rules are to be applied during the actual student mixing process. Rules may be specified as: A--Always apply, P--Preferred, or D--Don't care. You can simply review these rules and then return to the previous menu by entering 'X' at the choice prompt; or you can enter 'C' and elect to change the existing defaults. If you elect to change the defaults, you will be led through the rules one at a time and may change the rule by entering a new value or you may leave it the same by simply entering 'RETURN'. Please note that you can not use the full screen editor and go directly to the rule you want tq change. You must progress thru the rules one at a time.



```
              MIX ASSIGNMENT RULES MENU - SMSS2

  1) PRIORITY GIVEN TO COMMUNICATION SKILLS:              D
  2) PRIORITY GIVEN TO PPBS SKILLS:                       D
  3) PRIORITY GIVEN TO TACTICAL OPERATION SKILLS:         A
  4) PRIORITY GIVEN TO STRATEGIC OPERATION SKILLS:        A
  5) SOS STUDENTS DO NOT CHANGE SEMINARS:                 D
  6) IO'S DON'T CHANGE SEMINARS(OR 'X' TO DELETE):        X
  7) ARI STUDENTS DO NOT CHANGE SEMINARS:                 A
  8) CAN NOT BE ASSIGNED TO THE SAME SEMINAR:             A
  9) MAX # OF STUDENTS PREVIOUSLY ASSIGNED WITH:          1
  10) PRIORITY GIVEN TO ACQUISITION/LOG SKILLS:           D
  11) EVENLY DISTRIBUTE THE FOLLOWING STUDENTS:
      ARMY          A   NAVY          A   RATED           A
      RES/NG/MC     A   BY SEX        A   BY RACE         A
      NON LINE      A   BY RANK       D   USAFA           D
      ED.LEVEL      D   SR ORG EXP    D   SINGLE          A

  ENTER C) TO CHANGE THE DEFAULTS
        X) TO EXIT BACK TO THE PREVIOUS MENU

  ENTER YOUR CHOICE:  C
```

Figure 11. Mix Assignment Rules Menu

RUNNING_THE_MIX_MENU

This menu provides you with the ability to run the mix programs or return to the main menu. You may select mix 1, 2, 3, or Special. The special option should be used if you are running a new mix like mix 4, if you are running a partial mix like remixing wing B only, or if you simply want the rules left as they were--since the other options reset the rules to the standard defaults normally desired for that mix. BEFORE YOU RUN THE MIX PROGRAM YOU MUST HAVE EXTRACTED THE DATA FROM THE CONDOR DBMS AND PASSED IT TO SMSS USING THE PREPROCESSOR. This preprocessing only needs to be done once, but it must be done before running this program; if you have not done this do not proceed, instead return to the main menu, exit SMSS, go to the DBMS HELP menus and run the preprocessor.

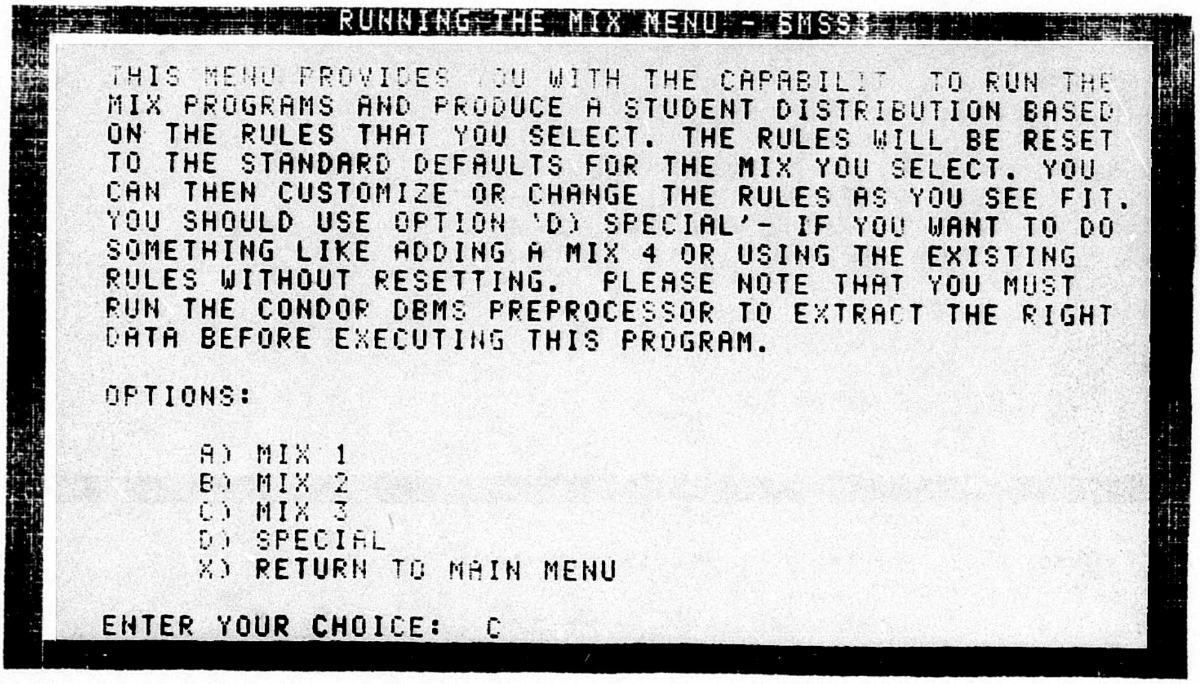
If you elect to run the mix you will then be given a chance to change the rules selection criteria. You may elect to change any or all of the rules to be applied during the mix process. When you enter 'X' to return from the Rules Menu, you will immediately start on the mixing process. The first program to be called will be SMSSMIXI which will read the data from the file provided by the CONDOR Preprocessor and write the student data out in a form useable by the SMSS mixing program. It will also initialize all the variables and arrays to be used during the mix process, and read in the rules. This process takes approximately four minutes. During the reading process a '.' will be printed on the screen after every ten records to let you know what the program is doing.

The next program to be executed is SMSSMIX which performs the actual mixing. It applies the rules you selected, one at a time. It takes the information supplied by SMSSMIXI and allocates each seminar a fair share of each student category (ie. pilots, minorities, PPBS skills, etc.). It then randomly assigns the most senior student not having already been a Seminar Leader (SL), as the SL for that seminar, and assigns the next most senior individual as the Alternate Seminar Leader (ASL). After the SL/ASL process, the international officers (IO's) are posted (they do not normally change seminars). Next, the ARI and SOS students are posted or assigned depending on the rules. The system performs assignments in the following order:

Assign Seminar Leaders & Alternate Seminar Leaders
Post International Officers
Post or assign ARI & SOS
Assign Army
Assign Communication Skills

Assign PPBS Skills
Assign Tactical Operation Skills
Assign Strategic Operation Skills
Assign Acquisition/Logistic Skills
Assign Navy, Reserve, National Guard, USMC
Assign Females
Assign Singles
Assign Minorities
Assign Pilots
Assign Navigators
Assign No Masters Education
Assign USAFA Graduates
Assign Senior Organizational Experience
Assign All Others

The mixing program takes approximately 30 minutes to run. During this process it prints out the category and the individual being processed. When the mixing is completed, the system will call the SMSSMIXO program to take the results and write them out in a form that is readable by the CONDOR DBMS; this takes three minutes. The system then returns to the SMSS program and allows the user to review the results through the statistical menu described in figure 13.

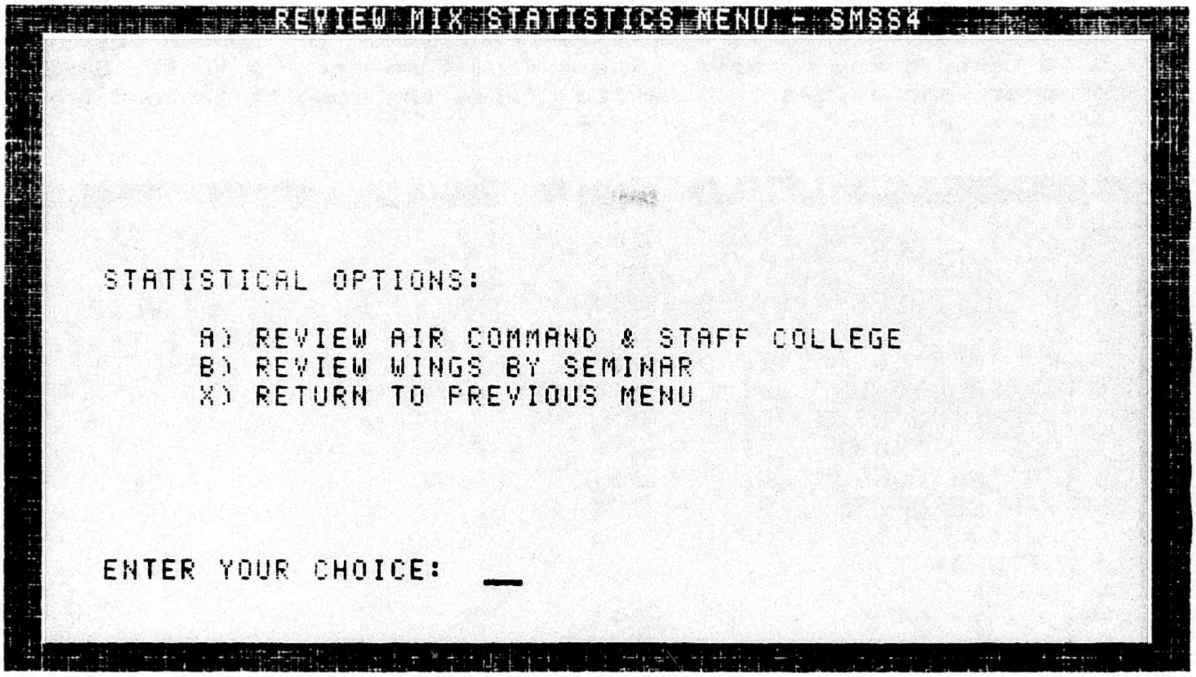


```
                     RUNNING THE MIX MENU - SMSS3

THIS MENU PROVIDES YOU WITH THE CAPABILITY TO RUN THE
MIX PROGRAMS AND PRODUCE A STUDENT DISTRIBUTION BASED
ON THE RULES THAT YOU SELECT. THE RULES WILL BE RESET
TO THE STANDARD DEFAULTS FOR THE MIX YOU SELECT. YOU
CAN THEN CUSTOMIZE OR CHANGE THE RULES AS YOU SEE FIT.
YOU SHOULD USE OPTION 'D) SPECIAL'- IF YOU WANT TO DO
SOMETHING LIKE ADDING A MIX 4 OR USING THE EXISTING
RULES WITHOUT RESETTING.  PLEASE NOTE THAT YOU MUST
RUN THE CONDOR DBMS PREPROCESSOR TO EXTRACT THE RIGHT
DATA BEFORE EXECUTING THIS PROGRAM.

OPTIONS:

     A) MIX 1
     B) MIX 2
     C) MIX 3
     D) SPECIAL
     X) RETURN TO MAIN MENU

ENTER YOUR CHOICE:  C
```

Figure 12.   Running the Mix Menu

REVIEW_MIX_STATISTICS_MENU

This menu provides you with the ability to review the results of the mix process at the overall school level, at the wing level, or by reviewing individual seminars. Examples of statistical reviews for these three levels are provided below. You may request a paper print out of these results by answering 'Y' to the question at the bottom of the screen. If you are not happy with the results of the mix you can rerun it by returning to the 'RUNNING THE MIX MENU'. The results will not be posted back to CONDOR until you run the CONDOR Post Processor which is the topic of chapter five.



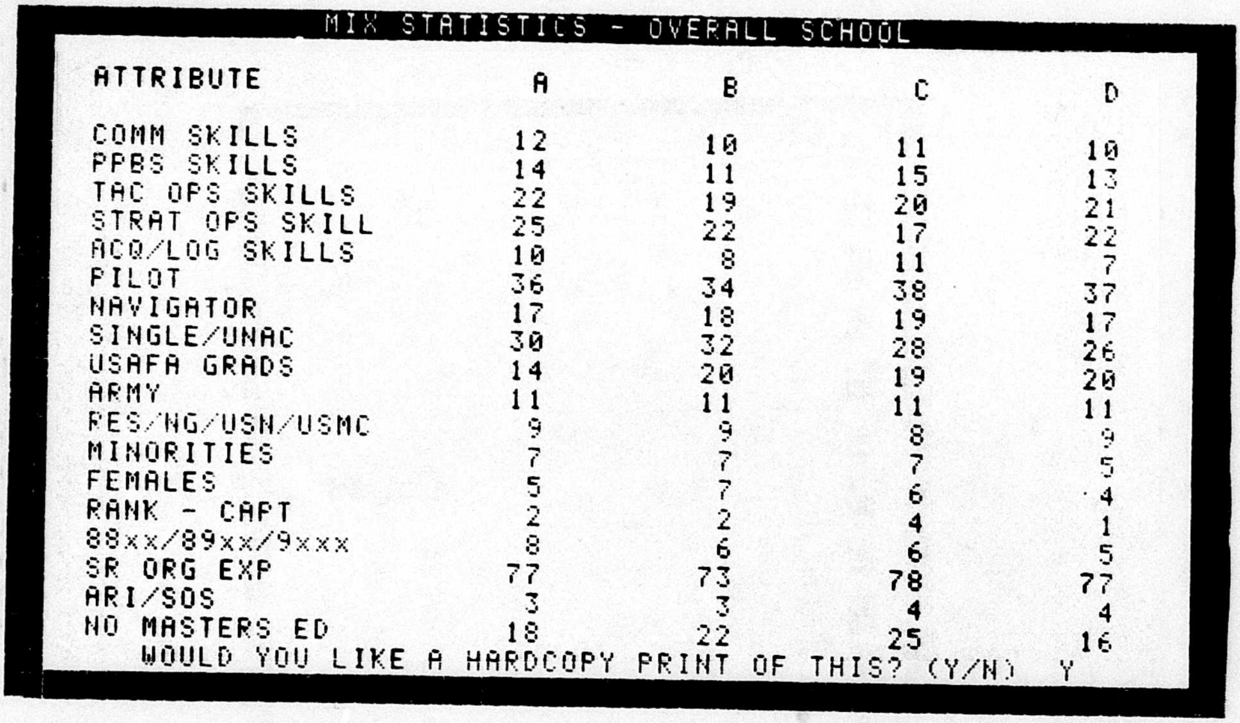
REVIEW MIX STATISTICS MENU - SMSS4

STATISTICAL OPTIONS:

A) REVIEW AIR COMMAND & STAFF COLLEGE
B) REVIEW WINGS BY SEMINAR
X) RETURN TO PREVIOUS MENU

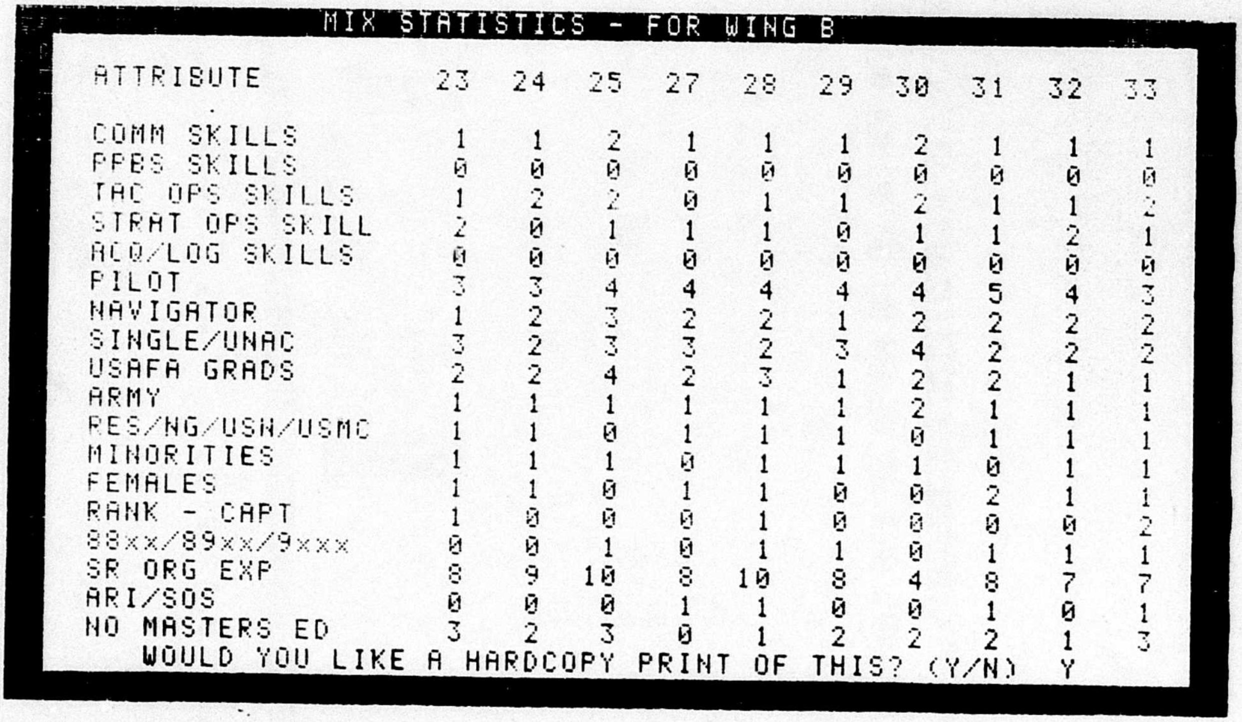
ENTER YOUR CHOICE: __

Figure 13. Review Mix Statistics Menu



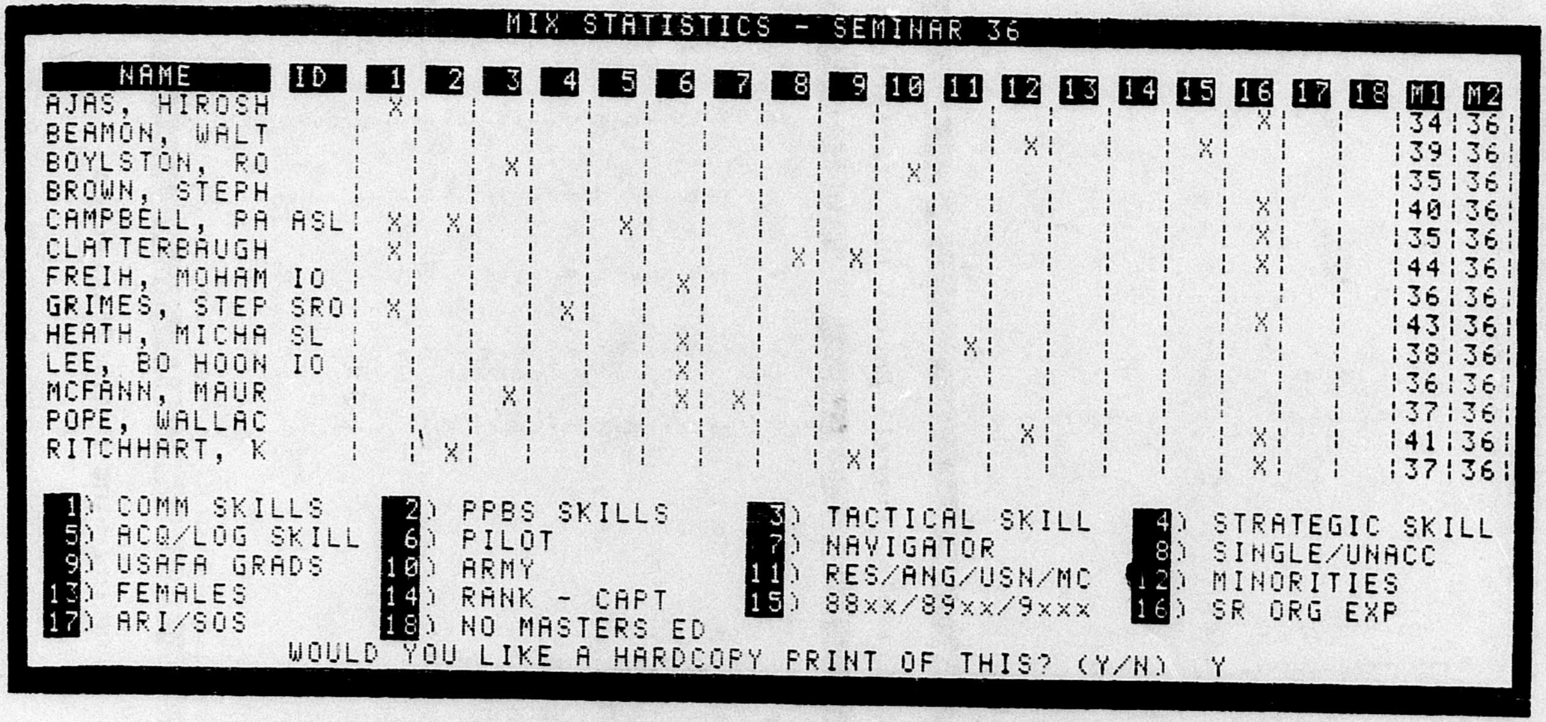
```
                    MIX STATISTICS - OVERALL SCHOOL

ATTRIBUTE                A          B          C          D

COMM SKILLS             12         10         11         10
PPBS SKILLS             14         11         15         13
TAC OPS SKILLS          22         19         20         21
STRAT OPS SKILL         25         22         17         22
ACQ/LOG SKILLS          10          8         11          7
PILOT                   36         34         38         37
NAVIGATOR               17         18         19         17
SINGLE/UNAC             30         32         28         26
USAFA GRADS             14         20         19         20
ARMY                    11         11         11         11
RES/NG/USN/USMC          9          9          8          9
MINORITIES               7          7          7          5
FEMALES                  5          7          6          4
RANK - CAPT              2          2          4          1
88xx/89xx/9xxx           8          6          6          5
SR ORG EXP              77         73         78         77
ARI/SOS                  3          3          4          4
NO MASTERS ED           18         22         25         16
    WOULD YOU LIKE A HARDCOPY PRINT OF THIS? (Y/N)  Y
```

Figure 14.   Example, Overall School Mix Statistics



```
                 MIX STATISTICS - FOR WING B

ATTRIBUTE          23  24  25  27  28  29  30  31  32  33

COMM SKILLS         1   1   2   1   1   1   2   1   1   1
PPBS SKILLS         0   0   0   0   0   0   0   0   0   0
TAC OPS SKILLS      1   2   2   0   1   1   2   1   1   2
STRAT OPS SKILL     2   0   1   1   1   0   1   1   2   1
ACQ/LOG SKILLS      0   0   0   0   0   0   0   0   0   0
PILOT               3   3   4   4   4   4   4   5   4   3
NAVIGATOR           1   2   3   2   2   1   2   2   2   2
SINGLE/UNAC         3   2   3   3   2   3   4   2   2   2
USAFA GRADS         2   2   4   2   3   1   2   2   1   1
ARMY                1   1   1   1   1   1   2   1   1   1
RES/NG/USN/USMC     1   1   0   1   1   1   0   1   1   1
MINORITIES          1   1   1   0   1   1   1   0   1   1
FEMALES             1   1   0   1   1   0   0   2   1   1
RANK - CAPT         1   0   0   0   1   0   0   0   0   2
88xx/89xx/9xxx      0   0   1   0   1   1   0   1   1   1
SR ORG EXP          8   9  10   8  10   8   4   8   7   7
ARI/SOS             0   0   0   1   1   0   0   1   0   1
NO MASTERS ED       3   2   3   0   1   2   2   2   1   3
    WOULD YOU LIKE A HARDCOPY PRINT OF THIS? (Y/N)  Y
```

Figure 15.   Example, Wing B Mix Statistics



MIX STATISTICS - SEMINAR 36

NAME	ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	M1	M2
AJAS, HIROSH		X															X			34	36
BEAMON, WALT													X			X				39	36
BOYLSTON, RO				X							X									35	36
BROWN, STEPH																	X			40	36
CAMPBELL, PA	ASL	X	X			X											X			35	36
CLATTERBAUGH		X							X	X							X			44	36
FREIH, MOHAM	IO						X													36	36
GRIMES, STEP	SRO	X			X												X			43	36
HEATH, MICHA	SL						X					X								38	36
LEE, BO HOON	IO						X													36	36
MCFANN, MAUR				X			X	X												37	36
POPE, WALLAC													X				X			41	36
RITCHHART, K			X							X							X			37	36

```
 1) COMM SKILLS     2) PPBS SKILLS       3) TACTICAL SKILL     4) STRATEGIC SKILL
 5) ACQ/LOG SKILL   6) PILOT             7) NAVIGATOR          8) SINGLE/UNACC
 9) USAFA GRADS    10) ARMY             11) RES/ANG/USN/MC    12) MINORITIES
13) FEMALES        14) RANK - CAPT      15) 88xx/89xx/9xxx    16) SR ORG EXP
17) ARI/SOS        18) NO MASTERS ED
        WOULD YOU LIKE A HARDCOPY PRINT OF THIS? (Y/N)  Y
```

Figure 16. Example, Seminar 36 Mix Statistics

REGISTER_MANUAL_CHANGES_TO_SEMINARS

The mixing program does not make a perfect mix, and manual changes are usually required. An easy way of checking out the ramifications of those changes is to produce the wing statistical summary in SMSS. But, before a correct statistical summary can be produced, the changes need to be posted. Selecting this option from the main menu will result in running the SMSSUPDT program which will read in the BASICIF input file from CONDOR and post the manual changes so that the statistics review menu can be used with the latest manual updates. Before selecting this option you should have completed your manual changes to the OMEGA and CINTER files using the CONDOR DBMS. These changes should then be written out to the BASICIF file using the appropriate help menu just as if you were going to run the mix over again. Instead of running the mix over, this option posts back the manual changes you have made so that you can determine their affect on the overall wing statistical distribution of key characteristics.

The next chapter will describe the CONDOR Post Processor which posts the results of the mix programs back to the CONDOR DBMS by reading the BASICOT ASCII file into CINTER. The Post Processor also contains a help menu for producing the required output reports.

Chapter Five

POST PROCESSING AND REPORTS

As described in chapter two, this phase of the system posts the mix assignment back to OMEGA and prepares a number of user selectable reports. Based upon these reports, the user can make any changes he/she feels are appropriate. After completing all changes, the assignments are posted to CINTER for next mix processing and final reports are generated.

As was the case for the preprocessing phase, the user should possess the skills described in chapter three.

The post processing phase should not be initiated until the mix phase has concluded with the creation of the file BASICOT.

Step 1. To enter the post process phase, the user must be within CONDOR. The post processing phase is initiated by calling up the main SMSS menu.

```
     Enter:  HELP SMSS <CR>
```

This action will present the SMSS screen (see figure 6.)

Step 2. The first step is to retrieve the newly created assignment information and post it to the OMEGA file. This is accomplished by selecting option 3.

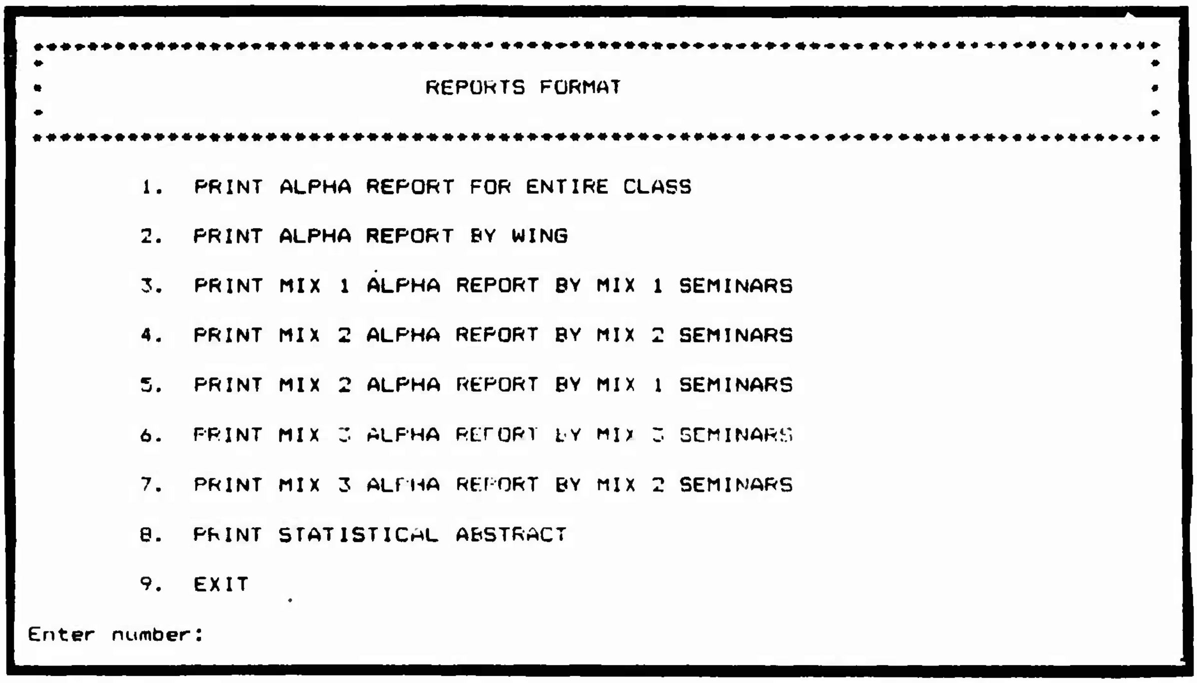
```
     Enter: 3<CR>
```

The posting process will take approximately 10 minutes. When it is finished the main SMSS menu will reappear.

Step 3. At this point, the information can be reviewed in different formats. To obtain a list of the various formats, the reports menu must be called.

Enter: 4<CR>

The following display will appear:



```
****************************************************************************
*                                                                          *
*                             REPORTS FORMAT                               *
*                                                                          *
****************************************************************************

        1.  PRINT ALPHA REPORT FOR ENTIRE CLASS

        2.  PRINT ALPHA REPORT BY WING

        3.  PRINT MIX 1 ALPHA REPORT BY MIX 1 SEMINARS

        4.  PRINT MIX 2 ALPHA REPORT BY MIX 2 SEMINARS

        5.  PRINT MIX 2 ALPHA REPORT BY MIX 1 SEMINARS

        6.  PRINT MIX 3 ALPHA REPORT BY MIX 3 SEMINARS

        7.  PRINT MIX 3 ALPHA REPORT BY MIX 2 SEMINARS

        8.  PRINT STATISTICAL ABSTRACT

        9.  EXIT

Enter number:
```

Figure 17. REPORTS Help Menu

Step 4. Make a selection of the appropriate report.

Enter: X<CR> (where X = the report number)

After sorting in the appropriate order, the report will begin printing. When the report is finished the report menu will reappear.

Step 5. After reviewing the reports, changes to the mix assignment can be made by updating the OMEGA file. To begin this process exit the reports phase and return to the SMSS main menu.

Enter: 9 <CR>

The CONDOR Prompt should appear.

Enter: HELP SMSS <CR>

The SMSS menu wi l appear (see figure 6).

Step 6. To initiate the update process:

    Enter: 1<CR>

The OMEGA format will appear and the update process can begin. For additional information on this subject, see the CONDOR III user manual.

Step 7. After the update process has been completed, the final results should be posted to CINTER. This step will eliminate the long process of creating the CINTER file from scratch and allow future mix assignment to be initiated at the mix phase. To post the results:

    Enter: 5<CR>

The post process should take about 10 minutes. When the process is completed the SMSS main menu will reappear.

Step 8. At this point the final reports can be run in the same manner at described in step 4. Once the reports are completed, the Student Mix Software System has completed its task.

Chapter Six

CONCLUSIONS

The success or failure of SMSS may be judged against two criteria. First, how much better is SMSS than the old Seminar Assignment Mix (SAM) system on the Honeywell. Second, how completely does SMSS meet the mixing objectives of the school. Any areas where SMSS falls short of the school objectives can be identified as areas of potential improvement.

SMSS VS SAM

According to the ACSC Mix Master, the SAM system was basically unresponsive to the current needs of the school. It required 7 to 10 days to get results back, it was basically unresponsive to required changes, and the product required extensive rework (nearly two weeks work involving from 25-40% of the students being reassigned) by the school and wing mix masters to produce a useable mix. The total manpower requirements of the SAM system were approximately 200 manhours to produce each final mix. This manpower intensive system, combined with the long lead time required to obtain the initial SAM product, meant that the system was not responsive to new requirements or new student data.

SMSS allows the mix master to turn the rules on or off as desired. It takes only 30 minutes to run the mix and obtain the initial results. If the SMSS results are undesirable, or if new data is available, the mix can be re-run immediately. The SMSS output is not quite perfect, it still requires some manual rework to produce a final mix. According to the ACSC Mix Master, the SMSS output will require several hours of manual rework by each of the wing mix masters as opposed to several weeks work on SAM. The SMSS output will require 5-10 moves per wing, which will involve reassigning approximately 5% of the students by hand. The CONDOR SMSS Statistical Output reports also permit the mix master to produce the ACSC Student Statistics Report in less than an hour as opposed to several weeks when done by hand. By any measure of comparison, SMSS is a great success when compared to the old semiautomated system. SMSS provide the mix master with more flexibility, greater user control, much faster results, and a better product.

SMSS_SHORTCOMINGS

If SMSS is compared to the school mix objectives, it does have a few shortcomings. It does not produce a perfectly even mix. There are also minor perterbations in the output with some seminars getting more of one student characteristic than another by a factor of more than one. There are also a few students who are assigned to seminars with two or more previous classmates. The CONDOR SMSS output report procedure produces all of the information required for the Student Statistical Report, but it does not automatically produce the final report in the correct format. Overall, SMSS does meet the school objectives of an improved product with much greater speed (about 400 times faster), and greater flexibility. It also permits accurate automatic statistical summaries for school reporting.

SUGGESTED_IMPROVEMENTS

Two programs could be written in ZBASIC to improve the performance of the SMSS. The first of these would be an adjustment program which would walk through the seminars and compare the student characteristics within a wing. Whenever it discovered two seminars with an imbalance of personnel characteristics it would try to swap students until it balanced the allocations. This program should also check and reassign anyone who was allocated to a seminar with more than one previous classmate.

The other program should be able to take the information provided by the CONDOR statistical summary queries and produce the final ACSC Student Statistical Report in the form required by the Air University (AU). This would further eliminate the work load on the ACSC Mix Master and reduce errors by eliminating manual processing and typing.

SMSS has done a lot to reduce the workload on the school and wing mix masters. It provides a much better product, with great flexibility, in much less time than previously required. With the addition of the improvements suggested above, SMSS will provide ACSC and the AU with a fast and efficient system to meet their student mixing and reporting requirements.

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APPENDICES

APPENDIX

A

Omega Data Base Values

OMEGA DATA BASE VALUES

1. NAME: LAST, FIRST, MI, ETC

2. SSAN: STANDARD 9 DIGIT, NO HYPHENS

3. RANK: O3, O4, ETC

4. DOR: 000000 (840101)

5. COMP: USAF, USA, USN, USMC, ANG, AFRES, CIV, USCG

6. AERO: PLT, NAV, SR.PLT, SR.NAV, CMD.PLT, MS.NAV, NO RATING

7. PAFSC: (AN) K1065C

8. PAS: SAC, MAC, TAC, ETC., REFER TO HANDOUT IN MIXER FOLDER FOR ACTUAL COMMAND CODES.

9. SEX: M, F

10. RACE: 3 DIGIT, CAU, BLK, OTH

11. MAR.ST: S, M, D (WE WILL HAVE TO UPDATE FOR UNACCOMPANIED)

12. DOB: 000000 (500101)

13. COMM: OTS, ROTC, USAFA, USMA, USNA, DIR

14. ED.LEVEL: BAC, BAC.P, MAS, MAS.P, PHD, ASSOC (HIGHEST LEVEL ATTAINED)

15. PLSD: 000000 (700101)

16. DAFSC: (AN) K1065C

17. 2.AFSC: """""""

18. 3.AFSC: """""""

19. H.ORG: DOD, HAF, SOA, MAJCOM, NAF, ADV, GRP, WNG, SQN, DET

20. PME.1: SOS C/R (INSERT IF SOS BY C OR R COMPLETED)

21. PME.2: ACSC S/C (INSERT IF ACSC BY S OR C COMPLETED)

22. PME.3: OTHER (AWC, ICAF, NDU, AFSC, ACGS, NWCS, NWC)

23. RTFD: 0000 (8705)

24. MOF : 000 (UP TO A 3 DIGIT NUMBER)

25. SEI: ALL GROUPS OF 3 NUMERICS, NO SPACES BETWEEN GROUPS

26. 1AC.HRS.DATE: MAKE SURE NUMERIC CODE TRANSLATED

27. 2AC.HRS.DATE: " " " " "

28. 3AC.HRS.DATE: " " " " "

29. 4AC.HRS.DATE: " " " " "

30. 5AC.HRS.DATE: " " " " "

31. WING: A,B,C,D

32. MIX.1: NUMERIC FROM 01-44

33. MIX.2: " " "

34. MIX.3: " " "

35. ST.NO.: (STUDENT NUMBER, FILLED IN AFTER MIXING)

36. AY: CLASS YEAR

APPENDIX

B

CONDOR Command Files

ABSTRAC1.CMD FILE

```
;THIS COMMAND FILE CREATES SECTIONS I AND SECTIONS II  OF  THE
CLASS STATISTICS
;REPORT.
;
COPY ABSTRACT = OMEGA OK
;
;IDENTIFY IO'S
SELECT ABSTRACT WHERE DOR = "     "
CHANGE RESULT ST COMP = IO
POST ABSTRACT RESULT BY SSAN REP COMP
SORT ABSTRACT BY COMP
;
;PRINTS SECTION I
TABULATE ABSTRACT BY COMP [P]
;
;PRINTS SECTION II
SORT ABSTRACT BY RANK, COMP
TABULATE ABSTRACT BY RANK, COMP [P]
RUN ABSTRAC3
*END
```

ABSTRAC3.CMD FILE

```
;THIS  COMMAND  FILE  CREATES SECTION III AND V OF THE STUDENT
STATISTICS REPORT
;
;IO'S ARE NOT INCLUDED IN SECTION III-XIV
DELETE ABSTRACT WHERE COMP = IO
;
SELECT ABSTRACT WHERE AERO = *PIL*
CHANGE RESULT ST AERO = PILOT
SAVE AERODB
;
SELECT ABSTRACT WHERE AERO = *NAV*
CHANGE RESULT ST AERO = NAVIGATOR
APPEND AERODB RESULT
;
SELECT ABSTRACT WHERE AERO = *NO*
CHANGE RESULT ST AERO = "NON RATED"
APPEND AERODB RESULT
;
SORT AERODB BY AERO, COMP
TABULATE AERODB BY AERO, COMP [S]
SAVE RPT1 OK
;
;CLEAN UP FILES
DESTROY AERODB OK
```

```
RUN ABSTRAC6
*END
```

ABSTRAC6.CMD FILE

```
;THIS COMMAND FILE CREATES SECTION VI OF THE  STUDENT  STATIS-
TICS REPORT
;
;
;COMBINES SINGLE AND DEVORICED INTO SINGLE
;
SELECT ABSTRACT WHERE MAR.ST = D,S
CHANGE RESULT ST MAR.ST = S
SAVE MARSTDB OK
;
;
;COMBINES MARRIED AND UNACCOMPANIED INTO MARRIED
;
SELECT ABSTRACT WHERE MAR.ST = M,U
CHANGE RESULT ST MAR.ST = M
APPEND MARSTDB RESULT
;
;
;IDENTIFIES  THE  NUMBER OF MARRIED OFFICERS THAT ARE UNACCOM-
PANIED
;
SELECT ABSTRACT WHERE MAR.ST = U
APPEND MARSTDB RESULT
;
;PRINT RESULTS
SORT MARSTDB BY MAR.ST
TABULATE MARSTDB BY MAR.ST [P]
;
;CLEAN UP FILES
DESTROY MARSTDB OK
RUN ABSTRAC7
*END
```

ABSTRAC7.CMD FILE

```
;THIS COMMNAD FILE CREATES SECTION VII OF THE STUDENT  STATIS-
TICS REPORT
;
SORT ABSTRACT BY SEX
TABULATE ABSTRACT BY SEX [P]
RUN ABSTRAC8
*END
```

ABSTRAC8.CMD FILE

```
;THIS COMMAND FILE CREATES SECTION VIII OF THE STUDENT
STATISICS REPORT
;
SORT ABSTRACT BY RACE
TABULATE ABSTRACT BY RACE [P]
RUN ABSTRAC9
*END
```

ABSTRAC9.CMD FILE

```
;THIS COMMAND FILE CREATES SECTION IX OF THE  STUDENT  STATIS-
TICS REPORT
;
;
;ELEMINATE CIV FROM THIS SECTION
SELECT ABSTRACT WHERE COMP NE CIV
SORT RESULT BY COMM
TABULATE RESULT BY COMM [P]
RUN ABSTRA11
*END
```

ABSTRA10.CMD FILE

```
;THIS COMMAND FILE CREATES SECTION X OF THE STUDENT STATISTICS
REPORT
;
SORT ABSTRACT BY H.ORG
TABULATE ABSTRACT BY H.ORG [P]
*END
```

ABSTRA11.CMD FILE

```
;THIS COMMAND FILE CREATES SECTION XI OF THE  STUDENT  STATIS-
TICS REPORT
;
:
;COMPUTE  OFFICERS WHO COMPLETED SOS AND EQUIVALANT SCHOOLS IN
RESIDENCE
;
SELECT ABSTRACT WHERE PME.1 = *R
SORT RESULT BY PME.1
TABULATE RESULT BY PME.1 [P]
;
;
;COMPUTE OFFICERS WHO COMPLETED PME BY CORRESPONDANCE
;
SELECT ABSTRACT WHERE PME.1 = *C
```

```
SORT RESULT BY PME.1
TABULATE RESULT BY PME.1 [P]
;
SELECT ABSTRACT WHERE PME.2 = ????C
SORT RESULT BY PME.2
TABULATE RESULT BY PME.2 [P]
;
SELECT ABSTRACT WHERE PME.3 = ????C
SORT RESULT BY PME.3
TABULATE RESULT BY PME.3 [P]
RUN ABSTRA12
*END
```

ABSTRA12.CMD FILE

```
;THIS COMMAND FILE  CREATES SECTION XII OF THE STUDENT STATIS
TICS REPORT
;
COMPUTE ABSTRACT WHERE ED.LEVEL = ?PDG ST ED.LEVEL = MAS+
SORT ABSTRACT BY ED.LEVEL, COMP
TABULATE ABSTRACT BY ED.LEVEL, COMP [P]
RUN ABSTRA13
*END
```

ABSTRA13.CMD FILE

```
;THIS  COMMAND  FILE  CREATES  SECTION  XIII  OF  THE STUDENTS
STATISTICS REPORT
;
;
;ELEMINATE NON AIR FORCE PERSONNEL FROM STATISTICS
;
SELECT ABSTRACT WHERE COMP = USAF,ANG,AFRES
SAVE OCCTEMP OK
;
SELECT OCCTEMP WHERE PAFSC = ?00???
CHANGE RESULT ST PAFSC = 00
SAVE RPTDB OK
;
SELECT OCCTEMP WHERE PAFSC = ?02???
CHANGE RESULT ST PAFSC = 02
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?05???
CHANGE RESULT ST PAFSC = 05
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?09???
CHANGE RESULT ST PAFSC = 09
APPEND RPTDB RESULT
;
```

```
SELECT OCCTEMP WHERE PAFSC = ?1????
CHANGE RESULT ST PAFSC = 10-20
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?20???
CHANGE RESULT ST PAFSC = 10-20
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?21???
CHANGE RESULT ST PAFSC = 10-20
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?22???
CHANGE RESULT ST PAFSC = 10-20
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?25???
CHANGE RESULT ST PAFSC = 25
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?26???
CHANGE RESULT ST PAFSC = 26
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?27???
CHANGE RESULT ST PAFSC = 27
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?28???
CHANGE RESULT ST PAFSC = 28
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?31???
CHANGE RESULT ST PAFSC = 31
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?40???
CHANGE RESULT ST PAFSC = 40
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?49???
CHANGE RESULT ST PAFSC = 49
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?55???
CHANGE RESULT ST PAFSC = 55
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?60???
CHANGE RESULT ST PAFSC = 60
APPEND RPTDB RESULT
;
```

```
SELECT OCCTEMP WHERE PAFSC = ?62???
CHANGE RESULT ST PAFSC = 62
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?64???
CHANGE RESULT ST PAFSC = 64
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?65???
CHANGE RESULT ST PAFSC = 65
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?66???
CHANGE RESULT ST PAFSC = 66
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?67???
CHANGE RESULT ST PAFSC = 67
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?70???
CHANGE RESULT ST PAFSC = 70
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?73???
CHANGE RESULT ST PAFSC = 73
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?74???
CHANGE RESULT ST PAFSC = 74
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?75???
CHANGE RESULT ST PAFSC = 75
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?79???
CHANGE RESULT ST PAFSC = 79
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?80???
CHANGE RESULT ST PAFSC = 80
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?81???
CHANGE RESULT ST PAFSC = 81
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?82???
CHANGE RESULT ST PAFSC = 82
APPEND RPTDB RESULT
;
```

```
SELECT OCCTEMP WHERE PAFSC = ?87???
CHANGE RESULT ST PAFSC = 87
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?88???
CHANGE RESULT ST PAFSC = 88
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?89???
CHANGE RESULT ST PAFSC = 89
APPEND RPTDB RESULT
;
SELECT OCCTEMP WHERE PAFSC = ?9????
CHANGE RESULT ST PAFSC = 90-99
APPEND RPTDB RESULT
;
;PRINT RESULTS
TABULATE RPTDB BY PAFSC [P]
;
;CLEAN UP FILES
DESTROY RPTDB OK
DESTROY OCCTEMP OK
RUN ABSTRA14
*END
```

ABSTRA14.CMD FILE

```
;THIS COMMAND FILE CREATS SECTION XIV OF THE STUDENT STATISTI-
CAL REPORT
;
;
SELECT ABSTRACT WHERE COMP = ANG, AFRES, USAF
SAVE RPTDB OK
SORT RPTDB BY PAS
TABULATE RPTDB BY PAS [P]
DESTROY RPTDB OK
RUN ABSTRA15
*END
```

ABSTRA15.CMD FILE

```
;THIS FILE CREATES SECTION XV OF THE STUDENT STATISTICS REPORT
;
;SELECT ONLY INTERNATIONAL OFFICER
;
SELECT OMEGA WHERE DOR = "     "
SORT RESULT BY COMP
TABULATE RESULT BY COMP [P]
*END
```

ALPHA.CMD FILE

```
SORT OMEGA BY NAME
REPORT ALPHA
*END
```

CPTMIXPR.CMD FILE

```
COMPUTE TEST1 WHERE DOR = " ", O ST IO = Y
SELECT TEST1 WHERE IO = Y
SAVE IOFILE
DELETE TEST1 WHERE IO = Y
COMPUTE TEST1 WHERE ED.LEVEL = BAC, BAC+, "     " ST NOMAST = Y
COMPUTE TEST1 WHERE H.ORG = MAJCOM,SOA,HAF,DOD ST SRORG = Y
COMPUTE TEST1 WHERE AERO = *PIL* ST PILOT = Y
COMPUTE TEST1 WHERE AERO = *NAV* ST NAVIGATOR = Y
COMPUTE TEST1 WHERE MAR.ST = U,D,S ST SINGLE = Y
COMPUTE TEST1 WHERE COMM = "AF ACAD" ST USAFA = Y
COMPUTE TEST1 WHERE COMP = USN  ST NAVY = Y
COMPUTE TEST1 WHERE COMP = USA ST ARMY = Y
COMPUTE TEST1 WHERE COMP = AFRES,  ANG, USMC, USG ST RESNGUSMC
= Y
COMPUTE TEST1 WHERE SEX = F ST FEMALE = Y
COMPUTE TEST1 WHERE RANK = O3 ST RANKC = Y
COMPUTE TEST1 WHERE PAFSC = ?88*,?89*,?9* OR  COMP  =  CIV  ST
NONLINE = Y
COMPUTE TEST1 WHERE PME.3 NE "     " ST SRPME = Y
COMPUTE TEST1 WHERE COMP = USAF ST USAF = Y
COMPUTE TEST1 WHERE RACE NE CAU ST MINORITY = Y
COMPUTE  TEST1  WHERE PAFSC = ?12*,  ?1525?,  ?18*,  ?1575A ST
STRATOPSK = Y
COMPUTE TEST1 WHERE PAFSC = ?11*,?1515?,?1555? ST TACOPSK = Y
COMPUTE TEST1 WHERE 2.AFSC = ?12*,  ?1525?,  ?18*,  ?1575A  ST
STRATOPSK = Y
COMPUTE TEST1 WHERE 2.AFSC = ?11*,?1515?,?1555? ST TACOPSK = Y
APPEND TEST1 IOFILE
COMPUTE TEST1 ST NRANK = @RANK
COMPUTE TEST1 ST NDOR = @DOR
DESTROY IOFILE
*END
```

PSTFINAL.CMD FILE

```
;    THIS  COMMAND FILE WILL POST THE USER MODIFIED RESULTS OF
THE
;  MIXING PROCESS BACK TO CINTER
;   THIS ACTION ELEMINATES THE NECCESSITY TO PREPARE THE  DATA
FOR THE
;  MIX ROUTINE IN FUTURE MIXES
;
COPY CINTERBU = CINTER OK
POST  CINTER  OMEGA  BY SSAN REP MIX.1,  MIX.2,  MIX.3,  ASL1,
ASL2,ASL3,SL1, SL2,SL3,CC, SRO
*END
```

PSTOMEGA.CMD FILE

```
            COPY OMEGABU = OMEGA OK
COPY CINTERBU = CINTER OK
EMPTY CINTER OK
READ CINTER BASICOT [E]
POST      OMEGA     CINTER       BY       NAME,SSAN       REP
MIX.1,MIX.2,MIX.3,ASL1,ASL2,ASL3,SL1,SL2,SL3,SRO,CC
*END
```

PSTSKILL.CMD FILE

```
;This command file post the student skills contained
;       in the BETA file to the CINTER file
;
COPY CINTERBU = CINTER OK
POST  CINTER  BETA  BY SSAN REP COMMSK,  STRATOPSK,  TACKOPSK,
PPBSSK, ACQLOG
*END
```

REDEFINE.CMD FILE

```
*MESSAGE ENTER THE NAME OF THE DATASET YOU WANT TO REDEFINE
*GET $1
*MESSAGE ENTER THE NAME FOR THE BACKUP COPY OF $1
*GET $2
COPY $2 = $1
WRITE $1 [B]
DEFINE $1
READ $1
*END
```

SEM1SEM1.CMD FILE

```
COPY RPTFILE = OMEGA OK
*MESSAGE YOU MAY SELECT ALL WINGS OR INDIVIDUAL WINGS
*MESSAGE TO SELECT ALL WINGS USE "X" OTHERWISE USE WING LETTER
*MESSAGE  ENTER WING LETTER  A,B,C,D OR X
*GET $1
*IF $1 = A,B,C,D
```

```
     SELECT RPTFILE WHE    WING = $1
     SAVE RPTFILE OK
*ENDIF
SORT RPTFILE BY MIX.1
REPORT SEM1ALPH ALL [P]
*END
```

SEM2SEM1.CMD FILE

```
COPY RPTFILE = OMEGA OK
*MESSAGE YOU MAY SELECT ALL WINGS OR INDIVIDUAL WINGS
*MESSAGE TO SELECT ALL WINGS USE "X" OTHERWISE USE WING LETTER
*MESSAGE  ENTER WING LETTER  A,B,C,D OR X
*GET $1
*IF $1 = A,B,C,D
     SELECT RPTFILE WHERE WING = $1
     SAVE RPTFILE OK
*ENDIF
SORT RPTFILE BY MIX.1
REPORT SEM1ALPH ALL [P]
*END
```

SEM2SEM2.CMD FILE

```
COPY RPTFILE = OMEGA OK
*MESSAGE YOU MAY SELECT ALL WINGS OR INDIVIDUAL WINGS
*MESSAGE TO SELECT ALL WINGS USE "X" OTHERWISE USE WING LETTER
*MESSAGE  ENTER WING LETTER  A,B,C,D OR X
*GET $1
*IF $1 = A,B,C,D
     SELECT RPTFILE WHERE WING = $1
     SAVE RPTFILE OK
*ENDIF
SORT RPTFILE BY MIX.2
REPORT SEM2ALPH ALL [P]
*END
```

SEM3SEM2.CMD FILE

```
COPY RPTFILE = OMEGA OK
*MESSAGE YOU MAY SELECT ALL WINGS OR INDIVIDUAL WINGS
*MESSAGE TO SELECT ALL WINGS USE "X" OTHERWISE USE WING LETTER
*MESSAGE  ENTER WING LETTER  A,B,C,D OR X
*GET $1
*IF $1 = A,B,C,D
     SELECT RPTFILE WHERE WING = $1
     SAVE RPTFILE OK
*ENDIF
SORT RPTFILE BY MIX.2
REPORT SEM2ALPH ALL [P]
```

```
*END
```

SME3SEM3.CMD FILE

```
;SINCE IO'S GRADUATE BEFORE THE THIRD MIX, THEY ARE ELEMINATED
;
SELECT OMEGA WHERE DOR NE "      "
;
SAVE RPTFILE OK
*MESSAGE YOU MAY SELECT ALL WINGS OR INDIVIDUAL WINGS
*MESSAGE TO SELECT ALL WINGS USE "X" OTHERWISE USE WING LETTER
*MESSAGE  ENTER WING LETTER  A,B,C,D OR X
*GET $1
*IF $1 = A,B,C,D
     SELECT RPTFILE WHERE WING = $1
     SAVE RPTFILE OK
*ENDIF
SORT RPTFILE BY MIX.3
REPORT SEM3ALPH ALL [P]
*END
```

SLTMIXDA.CMD FILE

```
COPY TEST1BU = TEST1 OK
DESTROY TEST1 OK
PROJECT OMEGA BY NAME, SSAN, RANK,ST.NO,  COMP,  AERO,  PAFSC,
2.AFSC,SEX, RACE, MAR.ST, COMM, ED.LEVEL, H.ORG, PME.3,
SAVE 1HALF OK
PROJECT OMEGA BY SSAN,WING, MIX.1, MIX.2, MIX.3, PAS, DOR,
SAVE 2HALF OK
JOIN 1HALF 2HALF MATCHING SSAN
SAVE TEST1 OK
DESTROY 1HALF OK
DESTROY 2HALF OK
REORG TEST1 TEST2.FRM
*END
```

SORT.CMD FILE

```
                              WRITE TEST1 TEMP
EMPTY TEST2 OK
READ TEST2 TEMP
COMPUTE TEST2 ST SORTKEY = (12-NRANK)*1000000 + NDOR
SORT TEST2 SORTKEY
*END
```

APPENDIX C

CONDOR Data File Descriptions

```
Attribute summary of dataset OMEGA

1.NAME:   AN,27,0,27,"               "
2.SSAN:   AN,9,0,9,"               "
3.RANK:   AN,2,0,2,"               "
4.DOR:   AN,6,0,6,"               "
5.COMP:   AN,5,0,5,"               "
6.AERO:   AN,9,0,9,"               "
7.PAFSC:   AN,6,0,6,"               "
8.PAS:   AN,3,0,3,"               "
9.SEX:   AN,1,0,1,"               "
10.RACE:   AN,3,0,3,"               "
11.MAR.ST:   AN,1,0,1,"               "
12.DOB:   AN,6,0,6,"               "
13.COMM:   AN,7,0,7,"               "
14.ED.LEVEL:   AN,4,0,4,"               "
15.PLSD:   AN,6,0,6,"               "
16.DAFSC:   AN,6,0,6,"               "
17.2.AFSC:   AN,6,0,6,"               "
18.3.AFSC:   AN,6,0,6,"               "
19.H.ORG:   AN,3,0,3,"               "
20.PME.1:   AN,5,0,5,"               "
21.PME.2:   AN,5,0,5,"               "
22.PME.3:   AN,5,0,5,"               "
23.RTFD:   AN,4,0,4,"               "
24.MOF:   AN,3,0,3,"               "
25.SEI:   AN,24,0,24,"               "
26.1.AC.HRS.DATE:   AN,15,0,15,"               "
27.2.AC.HRS.DATE:   AN,15,0,15,"               "
28.3.AC.HRS.DATE:   AN,15,0,15,"               "
29.4.AC.HRS.DATE:   AN,15,0,15,"               "
30.5.AC.HRS.DATE:   AN,15,0,15,"               "
31.WING:   AN,1,0,1,"               "
32.MIX.1:   AN,2,0,2,"               "
33.MIX.2:   AN,2,0,2,"               "
34.MIX.3:   AN,2,0,2,"               "
35.ST.NO:   AN,4,0,4,"               "
36.AY:   AN,2,0,2,"               "

Record size (bytes) = 251
Total records = 565


Attribute summary of dataset BETA

1.NAME:    A,27,0,27,"               "
2.SSAN:    N,9,0,9,"               "
3.1:   AN,6,0,6,"               "
4.11:   AN,31,0,31,"               "
5.21:   AN,4,0,4,"               "
```

```
6.31:    N,6,0,6,"               "
7.2:   AN,6,0,6,"               "
8.12:   AN,31,0,31,"               "
9.22:   AN,4,0,4,"               "
10.32:    N,6,0,6,"               "
11.3:   AN,6,0,6,"               "
12.13:   AN,31,0,31,"               "
13.23:   AN,4,0,4,"               "
14.33:    N,6,0,6,"               "
15.4:   AN,6,0,6,"               "
16.14:   AN,31,0,31,"               "
17.24:   AN,4,0,4,"               "
18.34:    N,6,0,6,"               "
19.5:   AN,6,0,6,"               "
20.15:   AN,31,0,31,"               "
21.25:   AN,4,0,4,"               "
22.35:    N,6,0,6,"               "
23.6:   AN,6,0,6,"               "
24.16:   AN,31,0,31,"               "
25.26:   AN,4,0,4,"               "
26.36:    N,6,0,6,"               "
27.7:   AN,6,0,6,"               "
28.17:   AN,31,0,31,"               "
29.27:   AN,4,0,4,"               "
30.37:    N,6,0,6,"               "
31.8:   AN,6,0,6,"               "
32.18:   AN,31,0,31,"               "
33.28:   AN,4,0,4,"               "
34.38:    N,6,0,6,"               "
35.9:   AN,6,0,6,"               "
36.19:   AN,31,0,31,"               "
37.29:   AN,4,0,4,"               "
38.39:    N,6,0,6,"               "
39.10:   AN,6,0,6,"               "
40.20:   AN,31,0,31,"               "
41.30:   AN,4,0,4,"               "
42.40:    N,6,0,6,"               "
43.COMM:    A,1,0,1,"               "
44.PPBS:    A,1,0,1,"               "
45.LOG:    A,1,0,1,"               "

Record size (bytes) = 510


Attribute summary of dataset TEST1

1.NAME:   AN,27,0,27,"               "
2.SSAN:   AN,9,0,9,"               "
3.RANK:   AN,2,0,2,"               "
4.ST.NO:   AN,4,0,4,"               "
5.COMP:   AN,5,0,5,"               "
```

```
6.AERO:   AN,9,0,9,"              "
7.PAFSC:   AN,6,0,6,"              "
8.PAS:   AN,3,0,3,"              "
9.SEX:   AN,1,0,1,"              "
10.RACE:   AN,3,0,3,"              "
11.MAR.ST:   AN,1,0,1,"              "
12.COMM:   AN,7,0,7,"              "
13.ED.LEVEL:   AN,4,0,4,"              "
14.H.ORG:   AN,3,0,3,"              "
15.PME.3:   AN,5,0,5,"              "
16.DOR:   AN,6,0,6,"              "
17.MIX.1:   AN,2,0,2,"              "
18.MIX.2:   AN,2,0,2,"              "
19.MIX.3:   AN,2,0,2,"              "
20.MIX.X:   AN,2,0,2,"              "
21.PAS:   AN,3,0,3,"              "
22.WING:   AN,1,0,1,"              "
23.USAF:   AN,1,0,1,"              "
24.NOMAST:   AN,1,0,1,"              "
25.SRORG:   AN,1,0,1,"              "
26.PILOT:   AN,1,0,1,"              "
27.NAVIGATOR:   AN,1,0,1,"              "
28.SINGLE:   AN,1,0,1,"              "
29.USAFA:   AN,1,0,1,"              "
30.NAVY:   AN,1,0,1,"              "
31.ARMY:   AN,1,0,1,"              "
32.RESNGUSMC:   AN,1,0,1,"              "
33.MINORITY:   AN,1,0,1,"              "
34.FEMALE:   AN,1,0,1,"              "
35.RANKC:   AN,1,0,1,"              "
36.NONLINE:   AN,1,0,1,"              "
37.SRPME:   AN,1,0,1,"              "
38.TOPPER:   AN,1,0,1,"              "
39.COMMSK:   AN,1,0,1,"              "
40.TACOPSK:   AN,1,0,1,"              "
41.STRATOPSK:   AN,1,0,1,"              "
42.PPBSSK:   AN,1,0,1,"              "
43.ACQLOG:   AN,1,0,1,"              "
44.SL1:   AN,1,0,1,"              "
45.SL2:   AN,1,0,1,"              "
46.SL3:   AN,1,0,1,"              "
47.SLX:   AN,1,0,1,"              "
48.ASL1:   AN,1,0,1,"              "
49.ASL2:   AN,1,0,1,"              "
50.ASL3:   AN,1,0,1,"              "
51.ASLX:   AN,1,0,1,"              "
52.SOS:   AN,1,0,1,"              "
53.ARI:   AN,1,0,1,"              "
54.SRO:   AN,1,0,1,"              "
55.CC:   AN,1,0,1,"              "
56.IO:   AN,1,0,1,"              "
57.NRANK:   AN,2,0,2,"              "
```

```
58.NDOR:   AN,6,0,6,"              "
59.SORTKEY:   AN,8,0,8,"              "

Record size (bytes) = 158
Total records = 158


Attribute summary of dataset TEST2

1.NAME:   AN,27,0,27,"              "
2. SSAN:   AN,9,0,9,"              "
3.RANK:   AN,2,0,2,"              "
4.ST.NO:   AN,4,0,4,"              "
5.COMP:   AN,5,0,5,"              "
6.AERO:   AN,9,0,9,"              "
7.PAFSC:   AN,6,0,6,"              "
8.PAS:   AN,3,0,3,"              "
9.SEX:   AN,1,0,1,"              "
10.RACE:   AN,3,0,3,"              "
11.MAR.ST:   AN,1,0,1,"              "
12.COMM:   AN,7,0,7,"              "
13.ED.LEVEL:   AN,4,0,4,"              "
14.H.ORG:   AN,3,0,3,"              "
15.PME.3:   AN,5,0,5,"              "
16.DOR:   AN,6,0,6,"              "
17.MIX.1:   AN,2,0,2,"              "
18.MIX.2:   AN,2,0,2,"              "
19.MIX.3:   AN,2,0,2,"              "
20.MIX.X:   AN,2,0,2,"              "
21.PAS:   AN,3,0,3,"              "
22.WING:   AN,1,0,1,"              "
23.USAF:   AN,1,0,1,"              "
24.NOMAST:   AN,1,0,1,"              "
25.SRORG:   AN,1,0,1,"              "
26.PILOT:   AN,1,0,1,"              "
27.NAVIGATOR:   AN,1,0,1,"              "
28.SINGLE:   AN,1,0,1,"              "
29.USAFA:   AN,1,0,1,"              "
30.NAVY:   AN,1,0,1,"              "
31.ARMY:   AN,1,0,1,"              "
32.RESNGUSMC:   AN,1,0,1,"              "
33.MINORITY:   AN,1,0,1,"              "
34.FEMALE:   AN,1,0,1,"              "
35.RANKC:   AN,1,0,1,"              "
36.NONLINE:   AN,1,0,1,"              "
37.SRPME:   AN,1,0,1,"              "
38.TOPPER:   AN,1,0,1,"              "
39.COMMSK:   AN,1,0,1,"              "
40.TACOPSK:   AN,1,0,1,"              "
41.STRATOPSK:   AN,1,0,1,"              "
42.PPBSSK:   AN,1,0,1,"              "
43.ACQLOG:   AN,1,0,1,"              "
```

```
44.SL1:   AN,1,0,1,"              "
45.SL2:   AN,1,0,1,"              "
46.SL3:   AN,1,0,1,"              "
47.SLX:   AN,1,0,1,"              "
48.ASL1:   AN,1,0,1,"              "
49.ASL2:   AN,1,0,1,"              "
50.ASL3:   AN,1,0,1,"              "
51.ASLX:   AN,1,0,1,"              "
52.SOS:   AN,1,0,1,"              "
53.ARI:   AN,1,0,1,"              "
54.SRO:   AN,1,0,1,"              "
55.CC:   AN,1,0,1,"              "
56.IO:   AN,1,0,1,"              "
57.NRANK:   N,2,0,10,"              "
58.NDOR:   N,6,0,991231,"              "
59.SORTKEY:   N,8,0,99999999,"              "

Record size (bytes) = 158
Total records = 141


Attribute summary of dataset CINTEK

1.NAME:   AN,27,0,27,"              "
2.SSAN:   AN,9,0,9,"              "
3.ST.NO:   AN,4,0,4,"              "
4.DOR:   AN,6,0,6,"              "
5.MIX.1:   AN,2,0,2,"              "
6.MIX.2:   AN,2,0,2,"              "
7.MIX.3:   AN,2,0,2,"              "
8.MIX.X:   AN,2,0,2,"              "
9.WING:   AN,1,0,1,"              "
10.USAF:   AN,1,0,1,"              "
11.NOMAST:   AN,1,0,1,"              "
12.SORG:   AN,1,0,1,"              "
13.PILOT:   AN,1,0,1,"              "
14.NAVIGATOR:   AN,1,0,1,"              "
15.SINGLE:   AN,1,0,1,"              "
16.USAFA:   AN,1,0,1,"              "
17.NAVY:   AN,1,0,1,"              "
18.ARMY:   AN 1,0,1,"              "
19.RESNGUSMC:   AN,1,0,1,"              "
20.MINORITY:   AN,1,0,1,"              "
21.FEMALE:   AN,1,0,1,"              "
22.RANKC:   AN,1,0,1,"              "
23.NONLINE:   AN,1,0,1,"              "
24.SRPME:   AN,1,0,1,"              "
25.TOPPER:   AN,1,0,1,"              "
26.COMMSK:   AN,1,0,1,"              "
27.STRATOPSK:   AN,1,0,1,"              "
28.TACKOPSK:   AN,1,0,1,"              "
29.PPBSSK:   AN,1,0,1,"              "
```

```
30.ACQLOG:   AN,1,0,1,"              "
31.SL1:   AN,1,0,1,"              "
32.SL2:   AN,1,0,1,"              "
33.SL3:   AN,1,0,1,"              "
34.SLX:   AN,1,0,1,"              "
35.ASL1:   AN,1,0,1,"              "
36.ASL2:   AN,1,0,1,"              "
37.ASL3:   AN,1,0,1,"              "
38.ASLX:   AN,1,0,1,"              "
39.SOS:   AN,1,0,1,"              "
40.ARI:   AN,1,0,1,"              "
41.SRO:   AN,1,0,1,"              "
42.CC:   AN,1,0,1,"              "
43.IO:   AN,1,0,1,"              "

Record size (bytes) = 90
Total records = 141
```

APPENDIX

D

SMSS ZBASIC Source Code

```
100 REM
1Ø5 REM **********************************************************************
11Ø REM **
115 REM **      PROGRAM NAME: STUDENT MIX SOFTWARE SYSTEM (SMSS)
12Ø REM **      FILE NAME:    SMSS.BAS          DATE:     18 FEB 1986
125 REM **      FUNCTION:     MAIN SYSTEM MENU
13Ø REM **      COMPUTER:     ZENITH 12Ø        LANGUAGE: BASIC
135 REM **      AUTHOR:       KEN RITCHHART
14Ø REM **
145 REM **********************************************************************
15Ø DIM WINGS$(5,6)
155 DIM STAT(18,5,12)
16Ø DIM STAT$(22)
165 DIM RULE$(22)
17Ø DIM SEMI(5,12,15,3)
175 COMMON MIX, SFLG, WINGS$(), STAT(), SEMI(), RULE$(), FLE$, TRONS, SU%, MU%
18Ø GOSUB 945
185 GDAT = Ø: TRONS = 1
19Ø BLK$ = "                               "
195 EMESS1$="ERROR - THE FIRST & LAST "+SUNIT$+" NUMBERS DON'T AGREE WITH TOT
2ØØ EMESS2$="YOU ARE MISSING SOME "+SUNIT$+" FROM THIS "+MUNIT$
205 EMESS3$="ENTER THE MISSING UNIT"
21Ø    GOSUB 285Ø
215 IF SFLG = 1 THEN GDAT = 1: GOSUB 2075
22Ø REM  SMSS.BAS
225 CLS
23Ø GOSUB 3125
235 SCREEN Ø,1: LOCATE 1,1
24Ø PRINT "                             SMSS MAIN MENU ";
245 PRINT "                                 ": SCREEN ,Ø
25Ø LOCATE 3,31: PRINT "WELCOME TO THE"
255 LOCATE 4,25: PRINT SCHOOL$
26Ø LOCATE 6,23: SCREEN ,1
265 PRINT "STUDENT MIX SOFTWARE SYSTEM (SMSS)"
27Ø SCREEN ,Ø: LOCATE 8,25: PRINT "CREATED BY: MAJOR KEN RITCHHART"
275 LOCATE 9,37: PRINT "MAJOR BOB SIMMONS"
28Ø LOCATE 11,1Ø: PRINT "ENTER THE NUMBER FOR THE DESIRED OPTION - "
285 LOCATE 13,2Ø: PRINT "1) SYSTEM CONFIGURATION"
29Ø LOCATE 14,2Ø: PRINT "2) MIX ASSIGNMENT RULES"
295 LOCATE 15,2Ø: PRINT "3) RUN THE MIX PROGRAMS"
3ØØ LOCATE 16,2Ø: PRINT "4) REVIEW MIX DISTRIBUTION STATISTICS"
3Ø5 LOCATE 18,2Ø: PRINT "6) EXIT TO SYSTEM LEVEL"
31Ø LOCATE 17,2Ø: PRINT "5) REGISTER MANUAL CHANGES TO SEMINARS"
315 LOCATE 2Ø,1Ø: PRINT "ENTER YOUR CHOICE: ";
32Ø INPUT C
325 LOCATE 19,2Ø: PRINT "                               ";
33Ø IF C = 1 THEN GOSUB 37Ø
335 IF C = 2 THEN GOSUB 98Ø
34Ø IF C = 3 THEN GOSUB 1585
345 IF C = 4 THEN GOSUB 2Ø75
```

```
35Ø IF C = 5 THEN CLOSE: CHAIN "SMSSUPDT"
355 IF C = 6 THEN CLOSE: CLS: SYSTEM
36Ø GOTO 22Ø
365 END
37Ø REM
375 REM ************************************************************************
38Ø REM **                                                                   **
385 REM **     PROGRAM NAME:  STUDENT MIX SOFTWARE SYSTEM (SMSS)             **
39Ø REM **     FILE NAME:     SMSS1.BAS          DATE:      27 NOV 1985      **
395 REM **     FUNCTION:      SYSTEM CONFIGURATION MENU                      **
4ØØ REM **     COMPUTER:      ZENITH 12Ø         LANGUAGE: BASIC             **
4Ø5 REM **     AUTHOR:        KEN RITCHHART                                  **
41Ø REM **                                                                   **
415 REM ************************************************************************
42Ø CLS
425 GOSUB 3125
43Ø SCREEN ,1: LOCATE 1,1
435 PRINT "                          SYSTEM CONFIGURATION MENU - SMSS1";
44Ø PRINT "                          ";: SCREEN ,Ø
445 LOCATE 3,1Ø: PRINT "THE DEFAULTS FOR THIS SYSTEM SET UP FOR ACSC. YOU CAN"
45Ø LOCATE 4,1Ø: PRINT "CHANGE THE NAMES OF THE ORGANIZATIONAL UNITS AND THE"
455 LOCATE 5,1Ø: PRINT "NUMBER OF UNITS BELOW - OR HIT RETURN TO LEAVE AS IS."
46Ø SCREEN ,1
465 LOCATE 7,1Ø: PRINT "SCHOOL NAME:";
47Ø LOCATE 8,1Ø: PRINT "MAJOR UNITS:";
475 LOCATE 8,5Ø: PRINT "NUMBER OF UNITS:";
48Ø LOCATE 9,1Ø: PRINT "NEXT SUBUNITS:";
485 LOCATE 9,5Ø: PRINT "TOTAL # OF SUBUNITS:";
49Ø SCREEN ,Ø
495 LOCATE 7,25: PRINT SCHOOL$;
5ØØ LOCATE 8,25: PRINT MUNIT$;
5Ø5 LOCATE 8,7Ø: PRINT MU%;
51Ø LOCATE 9,25: PRINT SUNIT$;
515 LOCATE 9,73: PRINT SU%;: SCREEN ,1
52Ø LOCATE 12,8: PRINT MUNIT$;
525 LOCATE 11,18: PRINT "NUMBER OF";
53Ø LOCATE 12,18: PRINT SUNIT$;"S";
535 LOCATE 11,3Ø: PRINT MUNIT$;
54Ø LOCATE 12,3Ø: PRINT "SENIORITY";
545 LOCATE 11,43: PRINT "FIRST";
55Ø LOCATE 12,43: PRINT SUNIT$;
555 LOCATE 11,55: PRINT "LAST";
56Ø LOCATE 12,55: PRINT SUNIT$;
565 LOCATE 11,66: PRINT "MISSING";
57Ø LOCATE 12,66: PRINT SUNIT$;"S";: SCREEN , Ø
575 FOR I% = 1 TO MU%
58Ø      LOCATE 13+I%,1Ø:  PRINT WING$(I%,1);
585      LOCATE 13+I%,22: PRINT WING$(I%,2);
59Ø      LOCATE 13+I%,34: PRINT WING$(I%,3);
595      LOCATE 13+I%,45: PRINT WING$(I%,4);
```

```
600     LOCATE 13+I%,58: PRINT WING$(I%,5);
605     LOCATE 13+I%,67: PRINT WING$(I%,6);
610 NEXT I%
615 LOCATE 20,1Ø: PRINT "ENTER C) TO CHANGE THE DEFAULTS";
62Ø LOCATE 21,16: PRINT "X) TO EXIT BACK TO THE PREVIOUS MENU.";
625 LOCATE 23,1Ø: PRINT "ENTER YOUR CHOICE: ";
63Ø IF FLAG = 1 THEN FLAG = Ø: RETURN
635 INPUT CH$
64Ø LOCATE 22,16: PRINT "                                    ";
645 IF CH$ = "C" THEN GOTO 675
65Ø IF CH$ = "c" THEN GOTO 675
655 IF CH$ = "X" THEN RETURN
66Ø IF CH$ = "x" THEN RETURN
665 LOCATE 22,16: SCREEN ,1: PRINT "INCORRECT CHOICE - TRY AGAIN";: SCREEN ,Ø
67Ø GOTO 625
675 LOCATE 7,25: INPUT "", TEMP$
68Ø IF TEMP$ <> "" THEN SCHOOL$ = TEMP$
685 LOCATE 8,25: INPUT "", TEMP$
69Ø IF TEMP$ <> "" THEN MUNIT$ = TEMP$
695 LOCATE 8,71: INPUT "", TEMP%
70Ø IF TEMP% <> 0 THEN MU% = TEMP%
7Ø5 LOCATE 9,25: INPUT "", TEMP$
71Ø IF TEMP$ <> "" THEN SUNIT$ = TEMP$
715 LOCATE 9,74: INPUT "", TEMP%
72Ø IF TEMP% <> Ø THEN SU% = TEMP%
725 FOR I = 7 TO 18
73Ø     LOCATE I,8: PRINT "                                            ";
735     PRINT "                         ";
74Ø NEXT I
745 FLAG = 1: GOSUB 46Ø
75Ø FOR I% = 1 TO MU%
755     LOCATE 13+I%,1Ø: INPUT "", TEMP$
76Ø     IF TEMP$ <> "" THEN WING$(I%,1) = TEMP$
765     LOCATE 13+I%,22: INPUT "", TEMP$
77Ø     IF TEMP$ <> "" THEN WING$(I%,2) = TEMP$
775     LOCATE 13+I%,34: INPUT "", TEMP$
78Ø     IF TEMP$ <> "" THEN WING$(I%,3) = TEMP$
785     LOCATE 13+I%,45: INPUT "", TEMP$
79Ø     IF TEMP$ <> "" THEN WING$(I%,4) = TEMP$
795     LOCATE 13+I%,58: INPUT "", TEMP$
8ØØ     IF TEMP$ <> "" THEN WING$(I%,5) = TEMP$
8Ø5     W2 = VAL(WING$(I%,2)): W3 = VAL(WING$(I%,3))
81Ø     W4 = VAL(WING$(I%,4)): W5 = VAL(WING$(I%,5))
815     IF (W5 - W4 + 1) > W2 THEN GOTO 82Ø ELSE GOTO 855
82Ø        LOCATE 19,1Ø: PRINT EMESS2$;
825        LOCATE 2Ø,1Ø: PRINT EMESS3$;
83Ø        LOCATE 13+I%,67: INPUT "", TEMP$
835        LOCATE 19,1Ø: PRINT BLK$ + BLK$
84Ø        LOCATE 2Ø,1Ø: PRINT BLK$ + BLK$
845     IF TEMP$ <> "" THEN WING$(I%,6) = TEMP$
```

```
850         GOTO 865
855         WING$(I%,6) = ""
860         LOCATE 13+I%,67: PRINT "          ";
865     IF (W5 - W4 + 1) < W2 THEN LOCATE 18,12: PRINT EMESS1$;:GOTO 765
870         LOCATE 18,12: PRINT BLK$ + BLK$ + "   "
875 NEXT I%
880 GOSUB 890
885 GOTO 495
890 REM *** WRITE OUT SCHOOL DATA ***
895 OPEN "O",#1,"F:SMSCHOOL.DAT"
900 PRINT #1, SCHOOL$;",": MUNIT$;",": SUNIT$;",": MU%;",": SU%
905 FOR I = 1 TO MU%
910     PRINT #1, WING$(I,1);",": WING$(I,2);",": WING$(I,3);",";
915     PRINT #1, WING$(I,4);",": WING$(I,5);",": WING$(I,6)
920 NEXT I
925 CLOSE #1
930 RETURN
935 REM *** END SCHOOL DATA OUTPUT ***
940 REM *** RETRIEVE SCHOOL DATA ***
945 OPEN "I",#1,"F:SMSCHOOL.DAT"
950 INPUT #1, SCHOOL$, MUNIT$, SUNIT$, MU%, SU%
955 FOR I = 1 TO MU%
960     INPUT #1, WING$(I,1), WING$(I,2), WING$(I,3),  WING$(I,4),  WING$(I,5),
 WING$(I,6)
965 NEXT I
970 CLOSE #1: RETURN
975 REM *** END RETRIEVE SCHOOL DATA ***
980 REM *** SMSS2.BAS ***
985 REM ********************************************************************
990 REM **                                                                **
995 REM **     PROGRAM NAME: STUDENT MIX SOFTWARE SYSTEM (SMSS)           **
1000 REM **     FILE NAME:     SMSS2.BAS          DATE:     27 NOV 1985    **
1005 REM **     FUNCTION:      MIX ASSIGNMENT RULES MENU                   **
1010 REM **     COMPUTER:      ZENITH 120         LANGUAGE: BASIC          **
1015 REM **     AUTHOR:        KEN RITCHHART                               **
1020 REM **                                                                **
1025 REM *******************************************************************
1030 BLK$ = "                              "
1035 CLS
1040 GOSUB 3125
1045 GOSUB 1550
1050 SCREEN ,1: LOCATE 1,1
1055 PRINT "                       MIX ASSIGNMENT RULES MENU - SMSS2";
1060 PRINT "                       ";
1065 SCREEN ,0: LOCATE 4,10
1070 PRINT "1) PRIORITY GIVEN TO COMMUNICATION SKILLS:  ";
1075 LOCATE 4,73: PRINT RULE$(1);: LOCATE 5,10
1080 PRINT "2) PRIORITY GIVEN TO PPBS SKILLS:  ";
1085 LOCATE 5,73: PRINT RULE$(2);: LOCATE 6,10
1090 PRINT "3) PRIORITY GIVEN TO TACTICAL OPERATION SKILLS: ";
1095 LOCATE 6,73: PRINT RULE$(3);: LOCATE 7,10
```

```
1100 PRINT "4) ARI STUDENTS DO NOT CHANGE SEMINARS:  ";
1105 LOCATE 7,73: PRINT RULE$(4);: LOCATE 8,10
1110 PRINT "5) SOS STUDENTS DO NOT CHANGE SEMINARS:  ";
1115 LOCATE 8,73: PRINT RULE$(5);: LOCATE 9,10
1120 PRINT "6) IO'S DO NOT CHANGE SEMINARS (OR 'X' TO DELETE): ";
1125 LOCATE 9,73: PRINT RULE$(6);: LOCATE 10,10
1130 PRINT "7) PRIORITY GIVEN TO STRATEGIC OPERATION SKILLS: ";
1135 LOCATE 10,73: PRINT RULE$(7);: LOCATE 11,10
1140 PRINT "8) STUDENTS MAY NOT HAVE BEEN ASSIGNED TO THIS SEMINAR BEFORE:  ";
1145 LOCATE 11,73: PRINT RULE$(8);: LOCATE 12,10
1150 PRINT "9) MAX # OF STUDENTS PREVIOUSLY ASSIGNED WITH: ";
1155 LOCATE 12,73: PRINT RULE$(9);: LOCATE 13,10
1160 LOCATE 14,10
1165 PRINT "11) EVENLY DISTRIBUTE THE FOLLOWING STUDENTS: ";
1170 LOCATE 15,15: PRINT "ARMY";: LOCATE 15,35: PRINT RULE$(11);
1175 LOCATE 15,40: PRINT "NAVY";: LOCATE 15,55: PRINT RULE$(12);
1180 LOCATE 15,60: PRINT "RATED";: LOCATE 15,75: PRINT RULE$(13);
1185 LOCATE 16,15: PRINT "RES,NG,MC";: LOCATE 16,35: PRINT RULE$(14);
1190 LOCATE 16,40: PRINT "BY SEX";: LOCATE 16,55: PRINT RULE$(15);
1195 LOCATE 16,60: PRINT "BY RACE";: LOCATE 16,75: PRINT RULE$(16);
1200 LOCATE 17,15: PRINT "NON LINE";: LOCATE 17,35: PRINT RULE$(17);
1205 LOCATE 17,40: PRINT "BY RANK";: LOCATE 17,55: PRINT RULE$(18);
1210 LOCATE 17,60: PRINT "USAFA GRADS";: LOCATE 17,75: PRINT RULE$(19);
1215 LOCATE 18,15: PRINT "ED. LEVEL";: LOCATE 18,35: PRINT RULE$(20);
1220 LOCATE 18,60: PRINT "SINGLE/UNAC";: LOCATE 18,75: PRINT RULE$(22);
1225 SCREEN ,1
1230 LOCATE 19,10: PRINT "CODES:   A) ALWAYS,    P) PERFERED,    D) DON'T CARE"
1235 SCREEN ,0
1240 LOCATE 23,10: PRINT BLK$;
1245 LOCATE 20,10: PRINT "ENTER C) TO CHANGE THE DEFAULTS";
1250 LOCATE 21,16: PRINT "X) TO EXIT BACK TO THE PREVIOUS MENU.";
1255 LOCATE 23,10: PRINT "ENTER YOUR CHOICE: ";
1260 IF FLAG = 1 THEN FLAG = 0: RETURN
1265 INPUT CH$
1270 LOCATE 22,16: PRINT "                                        ";
1275 IF CH$ = "C" THEN GOTO 1305
1280 IF CH$ = "c" THEN GOTO 1305
1285 IF CH$ = "X" THEN RETURN
1290 IF CH$ = "x" THEN RETURN
1295 LOCATE 22,16: SCREEN ,1: PRINT "INCORRECT CHOICE - TRY AGAIN";: SCREEN ,0
1300 GOTO 1255
1305 REM    CHANGE RULE VALUE
1310 SCREEN ,1
1315 FOR I = 1 TO 9
1320     LOCATE 3+I,73: INPUT "", TEMP$
1325     GOSUB 1410
1330     IF FLAG = 1 THEN GOTO 1320
1335 NEXT I
1340 I = 11
1345 FOR J = 15 TO 18
```

```
1350     FOR K = 35 TO 75 STEP 20
1355          IF I > 22 THEN GOTO 1385
1360         IF I = 10 OR I = 21 GOTO 1380
1365        LOCATE J,K: INPUT "", TEMP$
1370        GOSUB 1410
1375        IF FLAG = 1 THEN GOTO 1365
1380        I = I + 1
1385    NEXT K
1390 NEXT J
1395 SCREEN ,0
1400 GOSUB 1510
1405 GOTO 1240
1410 REM *** PROCESS INPUT CODES ***
1415 IF FLAG = 1 THEN LOCATE 3,10: SCREEN ,0: PRINT BLK$+"     ": SCREEN ,1
1420 IF TEMP$ = "" GOTO 1500
1425 IF I = 9 THEN GOTO 1490
1430 IF I = 10 THEN GOTO 1490
1435 IF TEMP$ = "A" THEN GOTO 1490
1440 IF TEMP$ = "a" THEN TEMP$ = "A": GOTO 1490
1445 IF TEMP$ = "P" THEN GOTO 1490
1450 IF TEMP$ = "p" THEN TEMP$ = "P": GOTO 1490
1455 IF TEMP$ = "D" THEN GOTO 1490
1460 IF TEMP$ = "d" THEN TEMP$ = "D": GOTO 1490
1465 IF TEMP$ = "X" AND I = 6 THEN GOTO 1490
1470 IF TEMP$ = "x" AND I = 6 THEN TEMP$ = "X": GOTO 1490
1475 LOCATE 3,10: PRINT "ERROR - INCORRECT ENTRY TRY AGAIN"
1480 FLAG = 1
1485 GOTO 1500
1490 FLAG = 0
1495 RULE$(I) = TEMP$
1500 RETURN
1505 REM *** END CODE PROCESSING ***
1510 REM *** WRITE OUT RULES DATA ***
1515 OPEN "O",#2,"F:SMRULE.DAT"
1520 FOR I = 1 TO 22
1525     PRINT #2, RULE$(I);",";
1530 NEXT I
1535 CLOSE #2
1540 RETURN
1545 REM *** END RULES DATA OUTPUT ***
1550 REM *** RETRIEVE RULES DATA ***
1555 OPEN "I",#2,"F:SMRULE.DAT"
1560 FOR I = 1 TO 22
1565     INPUT #2, RULE$(I)
1570 NEXT I
1575 CLOSE #2: RETURN
1580 REM *** END RETRIEVE RULES DATA ***
1585 REM *** SMSS3.BAS ***
1590 REM ***********************************************************************
1595 REM **                                                                    *
```

```
16ØØ REM **     PROGRAM NAME: STUDENT MIX SOFTWARE SYSTEM (SMSS)
16Ø5 REM **     FILE NAME:    SMSS3.BAS          DATE:     27 NOV 1985
161Ø REM **     FUNCTION:     RUNNING THE MIX    -  MENU
1615 REM **     COMPUTER:     ZENITH 12Ø         LANGUAGE: BASIC
162Ø REM **     AUTHOR:       KEN RITCHHART
1625 REM **
163Ø REM ********************************************************
1635 CLS
164Ø GOSUB 3125
1645 SCREEN ,1: LOCATE 1,1
165Ø PRINT "                            RUNNING THE MIX  MENU - SMSS3";
1655 PRINT "                        ";
166Ø SCREEN ,Ø: LOCATE 4,1Ø
1665 PRINT "THIS MENU PROVIDES YOU WITH THE CAPABILITY TO RUN THE MIX PROGRAM
167Ø LOCATE 5,1Ø
1675 PRINT "AND PRODUCE A STUDENT DISTRIBUTION BASED ON THE RULES THAT YOU ";
168Ø LOCATE 6,1Ø
1685 PRINT "TURN ON OR OFF.  IF YOU CHOOSE A STANDARD MIX (OPTION A, B, OR C)
169Ø LOCATE 7,1Ø
1695 PRINT "- THE RULES WILL BE RESET TO THE STANDARD DEFAULTS FOR THAT MIX."
17ØØ LOCATE 8,1Ø
17Ø5 PRINT "YOU CAN THEN CUSTOMIZE OR CHANGE THE RULES AS YOU SEE FIT.  YOU "
171Ø LOCATE 9,1Ø
1715 PRINT "SHOULD USE OPTION D) SPECIAL - IF YOU WANT TO DO SOMETHING LIKE "
172Ø LOCATE 1Ø,1Ø
1725 PRINT "ADDING A MIX 4 OR USING THE EXISTING RULES WITHOUT RESETING. ";
173Ø LOCATE 11,1Ø: SCREEN ,1
1735 PRINT "PLEASE NOTE: YOU MUST RUN THE DATA EXTRACTION PROGRAM UNDER THE";
174Ø LOCATE 12,1Ø: SCREEN ,1
1745 PRINT "CONDOR DBMS SMSS HELP MENU BEFORE EXECUTING THIS PROGRAM.";
175Ø LOCATE 14,1Ø: SCREEN ,Ø
1755 PRINT "OPTIONS:";
176Ø LOCATE 16,15: PRINT "A) MIX 1";
1765 LOCATE 17,15: PRINT "B) MIX 2";
177Ø LOCATE 18,15: PRINT "C) MIX 3";
1775 LOCATE 19,15: PRINT "D) SPECIAL";
178Ø LOCATE 2Ø,15: PRINT "X) RETURN TO MAIN MENU";
1785 LOCATE 22,1Ø: PRINT "ENTER YOUR CHOICE: ";: INPUT "",CH$
179Ø IF CH$ = "A" THEN GOTO 1845
1795 IF CH$ = "a" THEN GOTO 1845
18ØØ IF CH$ = "B" THEN GOTO 1885
18Ø5 IF CH$ = "b" THEN GOTO 1885
181Ø IF CH$ = "C" THEN GOTO 193Ø
1815 IF CH$ = "c" THEN GOTO 193Ø
182Ø IF CH$ = "D" THEN GOTO 199Ø
1825 IF CH$ = "d" THEN GOTO 199Ø
183Ø IF CH$ = "X" THEN RETURN
1835 IF CH$ = "x" THEN RETURN
184Ø GOTO 1585
1845 GOSUB 2Ø35
```

```
1850 MIX = 1
1855 RULE$(10) = STR$(SU% + MU% + 1)
1860 GOSUB 1510
1865 CLS: GOSUB 3125
1870 SCREEN ,1: LOCATE 3,30: PRINT "MIX 1 RULES";: SCREEN ,0
1875 GOSUB 1050
1880 GOTO 2020
1885 GOSUB 2035
1890 MIX = 2
1895 RULE$(1) = "D"
1900 RULE$(2) = "A"
1905 GOSUB 1510
1910 CLS: GOSUB 3125
1915 SCREEN ,1: LOCATE 3,30: PRINT "MIX 2 RULES";: SCREEN ,0
1920 GOSUB 1050
1925 GOTO 2020
1930 GOSUB 2035
1935 MIX = 3
1940 RULE$(1) = "D"
1945 RULE$(3) = "A"
1950 RULE$(5) = "P"
1955 RULE$(6) = "X"
1960 RULE$(22) = "A"
1965 GOSUB 1510
1970 CLS: GOSUB 3125
1975 SCREEN ,1: LOCATE 3,30: PRINT "MIX 3 RULES";: SCREEN ,0
1980 GOSUB 1050
1985 GOTO 2020
1990 LOCATE 19,10: PRINT "WHICH MIX IS THIS RUN FOR? ";: INPUT "", MIX$
1995 MIX = VAL(MIX$)
2000 CLS: GOSUB 3125
2005 LOCATE 3,30: SCREEN ,1: PRINT "SPECIAL RUN FOR MIX ";MIX;: SCREEN ,0
2010 GOSUB 1050
2015 GOTO 2020
2020 REM *** MIXING STUDENT ROUTINE ***
2025 CHAIN "SMSSMIXI"
2030 RETURN
2035 REM *** SET DEFAULT RULES ***
2040 RULE$(1) = "A": RULE$(2) = "D":  RULE$(3) = "D": RULE$(4) = "A"
2045 RULE$(5) = "A": RULE$(6) = "A":  RULE$(7) = "A": RULE$(8) = "A"
2050 RULE$(9) = "1": RULE$(10) =STR$(SU%):  RULE$(11) = "A": RULE$(12) = "A"
2055 RULE$(13) = "A": RULE$(14) = "D":  RULE$(15) = "A": RULE$(16) = "A"
2060 RULE$(17) = "A": RULE$(18) = "D":  RULE$(19) = "D": RULE$(20) = "D"
2065 RULE$(21) = "D": RULE$(22) = "A"
2070 RETURN
2075 REM
2080 REM ****************************************************************************
2085 REM **                                                                         *
2090 REM **      PROGRAM NAME: STUDENT MIX SOFTWARE SYSTEM (SMSS)                   *
2095 REM **      FILE NAME:    SMSS4.BAS           DATE:     13 DEC 1985            *
2100 REM **      FUNCTION:     REVIEW MIX STATISTICAL DISTRIBUTION                  *
2105 REM **      COMPUTER:     ZENITH 120         LANGUAGE: BASIC                   *
2110 REM **      AUTHOR:       KEN RITCHHART                                        *
```

```
2115 REM **                                                                  *
2120 REM ***********************************************************************
2125 CLS
2130  GOSUB 3125
2135   SCREEN ,1: LOCATE 1,1
2140   PRINT "                      REVIEW MIX STATISTICS MENU - SMSS4";
2145   PRINT "                       ";
2150   SCREEN ,0: LOCATE 4,10
2155   IF GDAT > 0 GOTO 2170
2160      GOSUB 2910
2165      GDAT = 1
2170    LOCATE 10,10: PRINT "STATISTICAL OPTIONS: ";
2175    LOCATE 12,15: PRINT "A) REVIEW ";SCHOOL$;" BY ";MUNIT$;
2180    LOCATE 13,15: PRINT "B) REVIEW ";MUNIT$;"S BY ";SUNIT$;
2185    LOCATE 14,15: PRINT "X) RETURN TO PREVIOUS MENU"
2190    LOCATE 20,10: PRINT "ENTER YOUR CHOICE: ";: INPUT "",CH$
2195    IF CH$ = "A" THEN GOSUB 2295
2200    IF CH$ = "a" THEN GOSUB 2295
2205    IF CH$ = "B" THEN GOTO 2230
2210    IF CH$ = "b" THEN GOTO 2230
2215    IF CH$ = "X" THEN RETURN
2220    IF CH$ = "x" THEN RETURN
2225    GOTO 2075
2230   LOCATE 15,18: PRINT "WHICH ";MUNIT$;" DO YOU WISH TO REVIEW? ";
2235   FOR I = 1 TO MU%
2240       MDD = ((I/4) - INT(I/4)) * 4: IF MDD = 0 THEN MDD = 4
2245       LOCATE (15 + INT((I/4)+.9)),(5+(MDD*15)): PRINT WING$(I,1);
2250   NEXT I
2255   LOCATE 17+(MU%/4),18: PRINT "PLEASE TYPE IN THE ";MUNIT$;" YOU DESIRE ";
2260   INPUT "",CH$:  WING = 0
2265   FOR I = 1 TO MU%
2270       IF CH$ = WING$(I,1) THEN WING = I
2275   NEXT I
2280   IF WING = 0 THEN PRINT "INCORRECT CHOICE - TRY AGAIN";: GOTO 2255
2285   GOSUB 2530
2290  GOTO 2075
2295  REM DISPLAY SCHOOL STATISTICS
2300   CLS
2305   GOSUB 3125
2310   SCREEN ,1: LOCATE 1,30: PRINT "MIX STATISTICS - OVERALL SCHOOL LEVEL";
2315   LOCATE 3,5: PRINT "ATTRIBUTE";
2320   FOR I = 1 TO MU%
2325       LOCATE 3, 25+INT((55/MU%)*(I-1)): PRINT WING$(I,1);
2330   NEXT I
2335   SCREEN ,0
2340   FOR I = 1 TO 18
2345       LOCATE 3+I,5: PRINT STAT$(I)
2350       FOR J = 1 TO MU%
2355           LOCATE 3+I,24+INT((55/MU%)*(J-1)): PRINT STAT(I,J,0);
```

```
2360        NEXT J
2365    NEXT I
2370    LOCATE 23,10: PRINT "WOULD YOU LIKE A HARDCOPY PRINT OF THIS? (Y/N) ";
2375    INPUT "", CH$
2380    IF CH$ = "Y" THEN GOSUB 2400
2385    IF CH$ = "y" THEN GOSUB 2400
2390   RETURN
2395   REM END SCHOOL STATISTICAL DISDPLASY
2400   REM *** PRINT SCHOOL STATISTICS
2405     OPEN "LPT1:" FOR OUTPUT AS #3
2410     PRINT #3, SPC(25);"MIX STATISTICS - OVERALL SCHOOL "
2415     PRINT #3,
2420     PRINT #3, "ATTRIBUTE";SPC(6);
2425     SP = INT(55/MU%)
2430     FOR I = 1 TO MU%
2435         PRINT #3, SPC(SP);WING$(I,1);
2440     NEXT I
2445     PRINT #3, : PRINT #3,
2450     FOR I = 1 TO 18
2455       PRINT #3, STAT$(I); SPC(16 - LEN(STAT$(I)));
2460       FOR J = 1 TO MU%
2465         IF STAT (I,J,Ø) > 99 THEN PRINT #3, SPC(SP-4);: GOTO 2480
2470         IF STAT (I,J,Ø) > 9 THEN PRINT #3, SPC(SP-3);: GOTO 2480
2475            PRINT #3, SPC(SP-2);
2480         PRINT #3, STAT(I,J,Ø);
2485       NEXT J
2490       PRINT #3,
2495     NEXT I
2500     FOR I = 1 TO 10
2505       PRINT #3,
2510     NEXT I
2515   CLOSE #3
2520   RETURN
2525   REM *** END PRINT WING STATISTICS ***
2530   REM DISPLAY WING STATISTICS
2535    CLS
2540    GOSUB 3125
2545    SCREEN ,1: LOCATE 1,30: PRINT "MIX STATISTICS - FOR ";MUNIT$;" ";WING$(WI
NG,1);
2550    LOCATE 3,5: PRINT "ATTRIBUTE";
2555    SU% = VAL(WING$(WING,2))
2560    I = Ø
2565    FOR J = 1 TO SU%
2570        I = I + 1
2575        IF VAL(WING$(WING,4))+I-1 = VAL(WING$(WING,6)) THEN I = I + 1
2580        LOCATE 3, 25+INT((55/SU%)*(J-1)): PRINT VAL(WING$(WING,4))+I-1;
2585    NEXT J
2590    I = Ø
2595    SCREEN ,Ø
2600    FOR I = 1 TO 18
2605        LOCATE 3+I,5: PRINT STAT$(I)
2610        K = Ø
```

```
2615       FOR J = 1 TO SU%
2620           K = K + 1
2625           IF VAL(WING$(WING,4))+K-1 = VAL(WING$(WING,6)) THEN K = K + 1
2630           LOCATE 3+I,25+INT((55/SU%)*(J-1)): PRINT STAT(I,WING,K);
2635       NEXT J
2640   NEXT I
2645   K = 0
2650   LOCATE 23,10: PRINT "WOULD YOU LIKE A HARDCOPY PRINT OF THIS? (Y/N) ";
2655   INPUT "", CH$
2660   IF CH$ = "Y" THEN GOSUB 2680
2665   IF CH$ = "y" THEN GOSUB 2680
2670  RETURN
2675  REM END WING STATISTICAL DISDPLASY
2680  REM *** PRINT WING STATISTICS
2685    OPEN "LPT1:" FOR OUTPUT AS #3
2690    PRINT #3, SPC(30);"MIX STATISTICS - FOR ";MUNIT$;" ";WING$(WING,1)
2695    PRINT #3,
2700    PRINT #3, "ATTRIBUTE";SPC(5);
2705    SU% = VAL(WING$(WING,2))
2710    SP = INT(55/SU%)
2715    I = 0
2720    FOR J = 1 TO SU%
2725        I = I + 1
2730        IF VAL(WING$(WING,4))+I-1 = VAL(WING$(WING,6)) THEN I = I + 1
2735        NUM = VAL(WING$(WING,4))+I-1: NUM$ = STR$(NUM)
2740        PRINT #3, SPC(SP+1-LEN(NUM$));NUM$;
2745    NEXT J
2750    PRINT #3, : PRINT #3,
2755    FOR I = 1 TO 18
2760      PRINT #3, STAT$(I); SPC(15 - LEN(STAT$(I)));
2765      K = 0
2770      FOR J = 1 TO SU%
2775           K = K + 1
2780           IF VAL(WING$(WING,4))+K-1 = VAL(WING$(WING,6)) THEN K = K + 1
2785           IF STAT(I,WING,K) > 99 THEN PRINT SPC(SP-4);: GOTO 2800
2790           IF STAT(I,WING,K) > 9 THEN PRINT #3, SPC(SP-3);: GOTO 2800
2795           PRINT #3, SPC(SP-2);
2800           PRINT #3, STAT(I,WING,K);
2805      NEXT J
2810      PRINT #3,
2815    NEXT I
2820    FOR I = 1 TO 10
2825      PRINT #3,
2830    NEXT I
2835  CLOSE #3
2840  RETURN
2845  REM *** END PRINT WING STATISTICS ***
2850 REM *** INITIALIZE RULES ***
2855    STAT$(1) = "COMM SKILLS":  STAT$(2) = "PPBS SKILLS"
2860    STAT$(3) = "TAC OPS SKILL" :  STAT$(4) = "STRAT OPS SKILL"
```

```
2865    STAT$(5) = "ACQ/LOG SKILL":STAT$(6) = "PILOT"
2870    STAT$(7) = "NAVIGATOR":    STAT$(8) = "SINGLE/UNAC"
2875    STAT$(9) = "USAFA GRADS":  STAT$(10) = "ARMY"
2880    STAT$(11)= "RES/NG/USN/USMC": STAT$(12) = "MINORITIES"
2885    STAT$(13)= "FEMALES":      STAT$(14) = "RANK - CAPT"
2890    STAT$(15)= "88xx/89xx/9xxx": STAT$(16) = "SR ORG EXP"
2895    STAT$(17)= "ARI/SOS":      STAT$(18) = "NO MASTER ED"
2900    FLE$ = "TRIAL1"
2905 RETURN
2910  REM GET STATISTICAL DATA
2915    OPEN "I", #4, "F:X"+FLE$+".DAT"
2920    FOR I = 0 TO 18
2925        FOR J = 0 TO 5
2930            FOR K = 0 TO 12
2935                IF EOF (4) THEN GOTO 3010
2940                INPUT #4, STAT(I,J,K)
2945            NEXT K
2950        NEXT J
2955    NEXT I
2960    FOR I = 0 TO 5
2965        FOR J = 0 TO 12
2970            FOR K = 0 TO 15
2975              FOR L = 0 TO 3
2980                IF EOF (4) THEN GOTO 3010
2985                INPUT #4, SEMI(I,J,K,L)
2990              NEXT L
2995            NEXT K
3000        NEXT J
3005    NEXT I
3010    CLOSE # 4
3015  RETURN
3020  REM END STATISTICAL RETRIEVAL
3025 REM OUTPUT STATS TO DISK
3030    OPEN "O", #4, "F:X"+FLE$+".DAT"
3035    FOR I = 1 TO 18
3040        FOR J = 0 TO 5
3045            FOR K = 0 TO 12
3050                PRINT #4, STAT(I,J,K)
3055            NEXT K
3060        NEXT J
3065    NEXT I
3070    FOR I = 0 TO 5
3075        FOR J = 0 TO 12
3080            FOR K = 0 TO 15
3085              FOR L = 0 TO 3
3090                PRINT #4, SEMI(I,J,K,L)
3095              NEXT L
3100            NEXT K
3105        NEXT J
3110    NEXT I
```

```
3115    CLOSE # 4
3120   RETURN
3125 REM *** CREATE BOX FOR SCREEN ***
3130 SCREEN ,1
3135 LOCATE 1,1: PRINT "                                                     ";
3140 PRINT "                                                  "
3145 FOR I% = 1 TO 24
3150     LOCATE I%,1: PRINT " ";: LOCATE I%,80: PRINT " ";
3155 NEXT I%
3160 LOCATE 24,1: PRINT "                                                    ";
3165 PRINT "                                                ";  :LOCATE 1,1
3170 SCREEN ,0: RETURN
3175 REM *** END BOX ***
3180 REM
3185 REM *********************************************************************
3190 REM **                                                                  *
3195 REM **      PROGRAM NAME: STUDENT MIX SOFTWARE SYSTEM (SMSS)            *
3200 REM **      FILE NAME:    SMSSBAS.TXT       DATE:      2 JAN 1986       *
3205 REM **      FUNCTION:     DOCUMENTATION ON VARIABLES                    *
3210 REM **      COMPUTER:     ZENITH 120         LANGUAGE: BASIC            *
3215 REM **      AUTHOR:       KEN RITCHHART                                 *
3220 REM **                                                                  *
3225 REM *********************************************************************
3230 REM ***** SYSTEM VARIABLE DOCUMENTATION ******
3235 REM        SCHOOL$ - NAME OF THE SCHOOL
3240 REM        MUNIT$  - NAME OF SCHOOL'S MAJOR UNITS (IE WINGS)
3245 REM        SUNIT$  - NAME OF SCHOOL'S MINOR UNITS (IE SEMINAR)
3250 REM        MU%     - NUMBER OF MAJOR UNITS IN THE SCHOOL (IE 4)
3255 REM        SU%     - NUMBER OF MINOR UNITS IN THE SCHOOL (IE 44)
3260 REM        WINGS$(8,6) - CHARACTERISTICS OF THE MAJOR UNITS
3265 REM           WING$(I,1) - WING NAME
3270 REM           WING$(I,2) - NUMBER OF SUBUNITS IN THE WING         - W2
3275 REM           WING$(I,3) - WING SENORITY (1 IS THE HIGHEST)       - W3
3280 REM           WING$(I,4) - FIRST SEMINAR IN THE WING              - W4
3285 REM           WING$(I,5) - LAST SEMINAR IN THE WING               - W5
3290 REM           WING$(I,6) - MISSING SUBUNITS (SEMINARS) IN THE WING
3295 REM        RULE$(25) - NAME OF THE RULE USED FOR MIXING STUDENTS
3300 REM           RULE$(1)  - COMM SKILLS          RULE$(2)  - PPBS SKILLS
3305 REM           RULE$(3)  - OPERATIONAL SKILLS   RULE$(4)  - ARI'S DONT MOVE
3310 REM           RULE$(5)  - SOS DON'T MOVE       RULE$(6)  - IO'S DONT MOVE
3315 REM           RULE$(7)  - RES/NG/USN/USMC      RULE$(8)  - DIFFRENT SEMINAR
3320 REM           RULE$(9)  - MAX # PREV STUDENTS  RULE$(10) - ACQUISITION/LOG
3325 REM           RULE$(11) - ARMY                 RULE$(12) - NAVY
3330 REM           RULE$(13) - RATED                RULE$(14) - COMP
3335 REM           RULE$(15) - SEX                  RULE$(16) - RACE
3340 REM           RULE$(17) - NON LINE             RULE$(18) - RANK (CAPT)
3345 REM           RULE$(19) - USAFA GRAD           RULE$(20) - ED. LEVEL
3350 REM           RULE$(21) - SENIOR PME           RULE$(22) - SINGLE/UNACC
3355 REM           VALUE OF RULES$(I) - A) ALWAYS, D) DON'T CARE, P) PERFERED
3360 REM        CH$  - CHOICE
```

```
3365 REM          TEMP$ - TEMPORARY INPUT VALUE
337Ø REM          STAT$(18) - NAME OF STATISTICAL ATTRIBUTE AFTER MIX RU
3375 REM             STAT$(1) = "COMM SKILLS":  STAT$(2) = "PPBS SKILLS"
338Ø REM             STAT$(3) = "OPS SKILLS" :  STAT$(4) = "ED. NO MASTERS"
3385 REM             STAT$(5) = "SR. ORG. EXP.":STAT$(6) = "PILOT"
339Ø REM             STAT$(7) = "NAVIGATOR":    STAT$(8) = "SINGLE/UNAC"
3395 REM             STAT$(9) = "USAFA GRADS":  STAT$(1Ø) = "ARMY"
34ØØ REM             STAT$(11)= "RES/NG/USN/USMC": STAT$(12) = "MINORITIES"
34Ø5 REM             STAT$(13)= "FEMALES":      STAT$(14) = "RANK - CAPT"
341Ø REM             STAT$(15)= "88xx/89xx/9xxx": STAT$(16) = "ACQ/LOG"
3415 REM             STAT$(17)= "ARI/SOS":      STAT$(18) = "TOP PERFORMER"
342Ø REM          INPUT DATA FILE "F:BASICIF" & OUTPUT FILE "F:BASICOT"
3425 REM                    SNAME          [NAME]
343Ø REM                    SSN            [SSAN]
3435 REM                    STN            [ST.NO]
344Ø REM                    DOR            [DOR]
3445 REM                    MIX1           [MIX.1]
345Ø REM                    MIX2           [MIX.2]
3455 REM                    MIX3           [MIX.3]
346Ø REM                    MIXX           [MIX.X]
3465 REM                    AWING          [WING]
347Ø REM                    USAF           DERIVE FROM [COMP]
3475 REM                    NOED           DERIVE FROM [ED.LEVEL] NO MASTERS DEGRE
348Ø REM                    HORG           DERIVE FROM [H.ORG] MAJCOM/SOA/USAF/DOD
3485 REM                    PILOT          DERIVE FROM [AERO] PILOT OR SR. PILOT
349Ø REM                    NAV            DERIVE FROM [AERO] NAV OR SR. NAV
3495 REM                    SING           DERIVE FROM [MAR.ST] U, D, S
35ØØ REM                    AFA            DERIVE FROM [COMM] AF ACAD
35Ø5 REM                    NAVY           DERIVE FROM [COMP]
351Ø REM                    ARMY           DERIVE FROM [COMP]
3515 REM                    RES            DERIVE FROM [COMP]  USMC,ANG,AFRES
352Ø REM                    RACE           DERIVE FROM [RACE]  BLACK OR OTHER
3525 REM                    FEM            DERIVE FROM [SEX]   F
353Ø REM                    RNK            DERIVE FROM [RANK]  Ø3
3535 REM                    NOLINE         DERIVE FROM [PAFSC] 88xx,89xx,9xxx
354Ø REM                    SRPME          DERIVE FROM [PME.3]
3545 REM                    TOPPER         ***********
355Ø REM                    COMM           ***********
3555 REM                    OPS            ***********
356Ø REM                    PPBS           ***********
3565 REM                    SL1            ***********
357Ø REM                    SL2            ***********
3575 REM                    SL3            ***********
358Ø REM                    SLX            ***********
3585 REM                    ASL1           ***********
359Ø REM                    ASL2           ***********
3595 REM                    ASL3           ***********
36ØØ REM                    ASLX           ***********
36Ø5 REM                    SOS            ***********
361Ø REM                    ARI            ***********
```

```
3615 REM                    SRO              ***********
3620 REM                    CC               ***********
3625 REM                    IO               ***********
3630 REM                    PAFSC            [PAFSC]
```

```
4000 REM
4005 REM ********************************************************************
4010 REM **                                                                    *
4015 REM **      PROGRAM NAME:  STUDENT MIX SOFTWARE SYSTEM (SMSS)             *
4020 REM **      FILE NAME:     SMSSMIXI.BAS      DATE:      2 FEB 1986 PM     *
4025 REM **      FUNCTION:      PROCESS INPUT DATA FOR SMSSMIX                 *
4030 REM **      COMPUTER:      ZENITH 120        LANGUAGE: BASIC              *
4035 REM **      AUTHOR:        KEN RITCHHART                                  *
4040 REM **                                                                    *
4045 REM ********************************************************************
4050 DIM TEMPIN$(44), ALOT(18,5,12)
4055 DIM WING$(5,6), STAT(18,5,12), SEMI(5,12,15,3), RULE$(22)
4060 COMMON MIX, SFLG, WING$(), STAT(), SEMI(), RULE$(), FLE$, TRONS, SU%, MU%
4065 CLS:  PRINT "                         RUNNING SMSS MIX INPUT PROCESSING ": PRINT
4070 GOSUB 4500
4075 REM ******** PROCESS INPUT DATA ********************
4080 OPEN "I", #3, "F:BASICIF."
4085 OPEN "R", #4, "F:SMSTDNT1.DAT"
4090 OPEN "R", #5, "F:SMSTDNT2.DAT"
4095 FIELD #4, 27 AS SNAME$,9 AS SSN$,4 AS STN$,6 AS DOR$,2 AS MIX1$,2 AS MIX2$,
2 AS MIX3$,2 AS MIXX$,1 AS AWING$,1 AS USAF$,1 AS NOED$,1 AS HORG$,1 AS PILOT$,
 AS NAV$,1 AS SING$,1 AS AFA$,1 AS NAVY$,1 AS ARMY$,1 AS RES$,1 AS RACE$,1 AS F
M$,1 AS RNK$
4100 FIELD #5,1 AS NOLINE$,1 AS SRPME$,1 AS TOPER$,1 AS COMM$,1 AS TOPS$,1 AS S
PS$,1 AS PPBS$,1 AS ACQLOG$,1 AS SL1$,1 AS SL2$,1 AS SL3$,1 AS SLX$,1 AS ASL1$,
 AS ASL2$,1 AS ASL3$,1 AS ASLX$,1 AS SOS$,1 AS ARI$,1 AS SRO$,1 AS CC$,1 AS IO$,
6 AS PAFSC$
4105 KO = 1: PRINT: PRINT "READING ";
4110 FOR KS = 1 TO 600
4115 IF KS/10 >= KO THEN PRINT ".";: KO = KO + 1
4120      STDNT = SI
4125      FOR J = 1 TO 44
4130           IF EOF (3) THEN GOTO 4455
4135           INPUT #3, TEMPIN$(J)
4140      NEXT J
4145        LSET SNAME$ = TEMPIN$(1)
4150        LSET SSN$ = TEMPIN$(2)
4155        LSET STN$ = TEMPIN$(3)
4160        LSET DOR$  = TEMPIN$(4)
4165        LSET MIX1$ = TEMPIN$(5)
4170        LSET MIX2$ = TEMPIN$(6)
4175        LSET MIX3$ = TEMPIN$(7)
4180        LSET MIXX$ = TEMPIN$(8)
4185        LSET AWING$= TEMPIN$(9)
4190        LSET USAF$ = TEMPIN$(10)
4195        LSET NOED$ = TEMPIN$(11)
4200        LSET HORG$ = TEMPIN$(12)
4205        LSET PILOT$= TEMPIN$(13)
4210        LSET NAV$  = TEMPIN$(14)
4215        LSET SING$ = TEMPIN$(15)
4220        LSET AFA$  = TEMPIN$(16)
4225        LSET NAVY$ = TEMPIN$(17)
4230        LSET ARMY$ = TEMPIN$(18)
```

```
4235          LSET RES$       = TEMPIN$(19)
424Ø          LSET RACE$      = TEMPIN$(2Ø)
4245          LSET FEM$       = TEMPIN$(21)
425Ø          LSET RNK$       = TEMPIN$(22)
4255          LSET NOLINE$    = TEMPIN$(23)
426Ø          LSET SRPME$     = TEMPIN$(24)
4265          LSET TOPPER$    = TEMPIN$(25)
427Ø          LSET COMM$   = TEMPIN$(26)
4275          LSET SOPS$   =TEMPIN$(27)
428Ø          LSET TOPS$ = TEMPIN$(28)
4285          LSET PPBS$ = TEMPIN$(29)
429Ø          LSET ACQLOG$=TEMPIN$(3Ø)
4295          LSET SL1$   = TEMPIN$(31)
43ØØ          LSET SL2$   = TEMPIN$(32)
43Ø5          LSET SL3$   = TEMPIN$(33)
431Ø          LSET SLX$   = TEMPIN$(34)
4315          LSET ASL1$ = TEMPIN$(35)
432Ø          LSET ASL2$ = TEMPIN$(36)
4325          LSET ASL3$ = TEMPIN$(37)
433Ø          LSET ASLX$ = TEMPIN$(38)
4335          LSET SOS$   = TEMPIN$(39)
434Ø          LSET ARI$   = TEMPIN$(4Ø)
4345          LSET SRO$   = TEMPIN$(41)
435Ø          LSET CC$    = TEMPIN$(42)
4355          LSET IO$    = TEMPIN$(43)
436Ø          LSET PAFSC$= TEMPIN$(44)
4365          IF IO$ = "Y" AND RULE$(6) = "X" GOTO 445Ø
437Ø      REM ***** RECORD SCHOOL OVERALL STATISTICS ****************
4375          JJ = Ø
438Ø          KK = Ø
4385          GOSUB 477Ø
439Ø              IF AWING$ = " " GOTO 4435
4395                 REM *** POST WING STATISTICS *****
44ØØ                  FOR J = 1 TO MU%
44Ø5                       IF AWING$ <> WING$(J,1) GOTO 443Ø
441Ø                           JJ = J
4415                           KK = Ø
442Ø                           GOSUB 477Ø
4425                           GOTO 4435
443Ø                  NEXT J
4435      SI = SI + 1
444Ø      PUT #4,SI
4445      PUT #5,SI
445Ø NEXT KS
4455 STDNT = SI
446Ø PRINT "PROCESSED IN ";KS-1;" STUDENTS INTO SMSS"
4465 PRINT  STDNT; " STUDENTS KEPT FOR FURTHER PROCESSING"
447Ø STAT(Ø,Ø,Ø) = STDNT
4475 GOSUB 4665
448Ø REM END OF DATA INPUT
4485 GOSUB 492Ø                                          'OUTPUT STATS TO SMSS
449Ø GOTO 5Ø45
```

```
4495 PRINT: PRINT
45Ø0 REM ******* INITIALIZE STAT & GET RULES
45Ø5    PRINT "INITIALIZING ";
451Ø    FOR I = Ø TO 18
4515        PRINT ".";
452Ø        FOR J = Ø TO 5
4525            FOR K = Ø TO 12
453Ø                STAT(I,J,K) = Ø
4535            NEXT K
454Ø        NEXT J
4545    NEXT I
4550    FOR I = Ø TO 5
4555        FOR J = Ø TO 12
456Ø            FOR K = Ø TO 15
4565                FOR L = Ø TO 3
457Ø                    SEMI(I,J,K,L) = Ø
4575                NEXT L
458Ø            NEXT K
4585        NEXT J
459Ø    NEXT I
4595 REM * RETRIEVE SCHOOL DATA **
46ØØ    OPEN "I", #1, "F:SMSCHOOL.DAT"
46Ø5    INPUT #1, SCHOOL$, MUNIT$, SUNIT$, MU%, SU%
461Ø    FOR I = 1 TO MU%
4615        INPUT #1, WING$(I,1),WING$(I,2),WING$(I,3),WING$(I,4),WING$(I,5),
                      WING$(I,6)
462Ø    NEXT I
4625    CLOSE #1
463Ø    REM      **** RETRIEVE RULES DATA ******
4635    OPEN "I", #1, "F:SMRULE.DAT"
464Ø    FOR I = 1 TO 22
4645        INPUT #1, RULE$(I)
4650    NEXT I
4655    CLOSE #1
466Ø    RETURN
4665 REM  ********PRINT OUT INPUT STATISTICS ***********************
467Ø    PRINT
4675    PRINT "THERE WERE "; STAT(1,Ø,Ø); "STUDENTS WITH COMMUNICATION SKILLS"
468Ø    PRINT "THERE WERE "; STAT(2,Ø,Ø); "STUDENTS WITH PPBS SKILLS"
4685    PRINT "THERE WERE "; STAT(3,Ø,Ø); "STUDENTS WITH TAC OPS SKILLS"
469Ø    PRINT "THERE WERE "; STAT(4,Ø,Ø); "STUDENTS WITH STRAT OPS SKILLS"
4695    PRINT "THERE WERE "; STAT(5,Ø,Ø); "ACQUISITION / LOGISTICS STUDENTS"
47ØØ    PRINT "THERE WERE "; STAT(6,Ø,Ø); "STUDENT  PILOTS"
47Ø5    PRINT "THERE WERE "; STAT(7,Ø,Ø); "STUDENT  NAVIGATORS"
471Ø    PRINT "THERE WERE "; STAT(8,Ø,Ø); "SINGLE  STUDENTS"
4715    PRINT "THERE WERE "; STAT(9,Ø,Ø); "STUDENT  USAFA GRADS"
472Ø    PRINT "THERE WERE "; STAT(1Ø,Ø,Ø); "STUDENTS FROM THE ARMY"
4725    PRINT "THERE WERE "; STAT(11,Ø,Ø); "STUDENT  AFRES/ ANG/ USMC/ NAVY"
473Ø    PRINT "THERE WERE "; STAT(12,Ø,Ø); "STUDENT  MINORITIES"
4735    PRINT "THERE WERE "; STAT(13,Ø,Ø); "STUDENT  FEMALES"
474Ø    PRINT "THERE WERE "; STAT(14,Ø,Ø); "CAPTAINS"
4745    PRINT "THERE WERE "; STAT(15,Ø,Ø); "STUDENT 88XX, 89XX, 9XXX"
```

```
475Ø    PRINT "THERE WERE "; STAT(16,Ø,Ø); "STUDENTS WITH SR ORG EXPERIENCE"
4755    PRINT "THERE WERE "; STAT(17,Ø,Ø); "SOS / ARI STUDENTS"
476Ø    PRINT "THERE WERE "; STAT(18,Ø,Ø); "WITH NO MASTERS ED"
4765 RETURN
477Ø    REM ************** RECORD STATISTICS ***********************************
4775            IF JJ <> O THEN STAT(Ø,JJ,Ø)=STAT(Ø,JJ,Ø) + 1
478Ø            IF KK = Ø GOTO 482Ø
4785            FOR MM = 1 TO 15
479Ø                IF SEMI(JJ,KK,MM,Ø) <> Ø THEN GOTO 4815
4795                    SEMI(JJ,KK,MM,Ø)=SI: SEMI(JJ,KK,Ø,Ø)=SEMI(JJ,KK,Ø,Ø)
48ØØ                    SEMI(JJ,KK,MM,1)=VAL(MIX1$): SEMI(JJ,KK,MM,2)=VAL(MIX2
48Ø5                    SEMI(JJ,KK,MM,3)=VAL(MIX3$)
481Ø            GOTO 482Ø
4815            NEXT MM
482Ø            IF COMM$  = "Y" THEN STAT(1,JJ,KK) = STAT(1,JJ,KK) + 1
4825            IF PPBS$  = "Y" THEN STAT(2,JJ,KK) = STAT(2,JJ,KK) + 1
483Ø            IF TOPS$  = "Y" THEN STAT(3,JJ,KK) = STAT(3,JJ,KK) + 1
4835            IF SOPS$  = "Y" THEN STAT(4,JJ,KK) = STAT(4,JJ,KK) + 1
484Ø            IF ACQLOG$ ="Y" THEN STAT(5,JJ,KK) = STAT(5,JJ,KK) + 1
4845            IF PILOT$ = "Y" THEN STAT(6,JJ,KK) = STAT(6,JJ,KK) + 1
485Ø            IF NAV$   = "Y" THEN STAT(7,JJ,KK) = STAT(7,JJ,KK) + 1
4855            IF SING$  = "Y" THEN STAT(8,JJ,KK) = STAT(8,JJ,KK) + 1
486Ø            IF AFA$   = "Y" THEN STAT(9,JJ,KK) = STAT(9,JJ,KK) + 1
4865            IF ARMY$  = "Y" THEN STAT(1Ø,JJ,KK) = STAT(1Ø,JJ,KK) + 1
487Ø            IF RES$="Y" OR NAVY$="Y" THEN STAT(11,JJ,KK) = STAT(11,JJ,KK)+
4875            IF RACE$   = "Y" THEN STAT(12,JJ,KK) = STAT(12,JJ,KK) + 1
488Ø            IF FEM$   = "Y" THEN STAT(13,JJ,KK) = STAT(13,JJ,KK) + 1
4885            IF RNK$   = "Y" THEN STAT(14,JJ,KK) = STAT(14,JJ,KK) + 1
489Ø            IF NOLINE$ ="Y" THEN STAT(15,JJ,KK) = STAT(15,JJ,KK) + 1
4895            IF HORG$  = "Y" THEN STAT(16,JJ,KK) = STAT(16,JJ,KK) + 1
49ØØ            IF ARI$ ="Y" OR SOS$="Y" THEN STAT(17,JJ,KK) = STAT(17,JJ,KK)
49Ø5            IF NOED$  = "Y" THEN STAT(18,JJ,KK) = STAT(18,JJ,KK) + 1
491Ø RETURN
4915 REM ************** END STATISTICS ************************************
492Ø REM ********** OUTPUT  STATISTICS ************************************
4925 PRINT "     OUTPUTING STATISTICS ";
493Ø    OPEN "O", #1, "F:XTRIAL1.DAT"
4935    FOR I = Ø TO 18
494Ø        PRINT ".";
4945        FOR J = Ø TO 5
495Ø            FOR K = Ø TO 12
4955                PRINT #1, STAT(I,J,K)
496Ø            NEXT K
4965        NEXT J
497Ø    NEXT I
4975    FOR I = Ø TO 5
498Ø        PRINT ";";
4985        FOR J = Ø TO 12
499Ø            FOR K = Ø TO 15
4995                FOR L = Ø TO 3
```

```
5000                    PRINT #1, SEMI(I,J,K,L)
5005                NEXT L
5010            NEXT K
5015        NEXT J
5020    NEXT I
5025   CLOSE
5030 RETURN
5035 REM ******************* DONE *************************************
5040 SFLG = 1
5045 CHAIN "SMSSMIX"
5050 END
```

```
5500 REM
5505 REM ***********************************************************************
5510 REM **
5515 REM **     PROGRAM NAME: STUDENT MIX SOFTWARE SYSTEM (SMSS)
5520 REM **     FILE NAME:    SMSSMIX.BAS       DATE:      4 FEB 1986 AM
5525 REM **     FUNCTION:     PROGRAM TO MIX THE STUDENTS
5530 REM **     COMPUTER:     ZENITH 12Ø        LANGUAGE: BASIC
5535 REM **     AUTHOR:       KEN RITCHHART
5540 REM **
5545 REM ***********************************************************************
5550 DIM RULE$(22), WING$(5,6), STAT(18,5,12), SL(12), ASL(12)
5555 DIM SEMI(5,12,15,3), ALOT(18,5,12)
5560 COMMON MIX, SFLG, WING$(), STAT(), SEMI(), RULE$(), FLE$, TRONS, MU%, SU%
5565 RULE$(Ø) = "Z"
5570 CLS: PRINT TAB(25);"SMSS MIXING ROUTINE": PRINT: PRINT
5575 REM ******** PROCESS STUDENTS *********************
5580       GOSUB 582Ø                                             'OPEN FILES & GET DA
5585       GOSUB 6455                                            'ALOT SLOTS TO SEMINA
5590       GOSUB 6975                                            'ASSIGN SL & ASL
5595       GOSUB 7425                                            'POST IOs
5600       GOSUB 7495                                            'POST ARI & SOS
5605       RL$=" ARMY "    : RL = 11: IR = 1Ø: GOSUB 8115    'ASSIGN ARMY
5610       RL$=" COMM SKILL": RL = 1: IR = 1: GOSUB 8115    'ASSIGN CRITICAL SKIL
5615       RL$=" PPBS SKILL": RL = 2: IR = 2: GOSUB 8115    'ASSIGN CRITICAL SKIL
5620       RL$=" ACQ/LOG SKILL": RL = 1Ø: IR = 5: GOSUB 8115 'ASSIGN CRITICAL SK
L
5625       RL$=" TACOPS SKILL": RL = 3: IR = 3: GOSUB 8115  'ASSIGN CRITICAL SKI
S
5630       RL$=" STRATOPS SKILL": RL = 3: IR = 4: GOSUB 8115  'ASSIGN CRIT SKILL
5635       RL$=" USN,MC,NG,RES": RL = 7: IR = 11: GOSUB 8115 'ASSIGN NAVY, RES E
5640       RL$=" MINORITIES ": RL = 16: IR = 12: GOSUB 8115 'ASSIGN MINORITIES
5645       RL$=" FEMALES ": RL = 15: IR = 13: GOSUB 8115    'ASSIGN FEMALES
5650       RL$=" NON LINE": RL = 17: IR = 15: GOSUB 8115    'ASSIGN NON LINE
5655       RL$=" SINGLES ": RL = 22: IR = 8:  GOSUB 8115    'ASSIGN SINGLES
5660       RL$=" PILOTS ":  RL = 13: IR = 6: GOSUB 8115     'ASSIGN PILOTS
5665       RL$=" NAVIGATORS ": RL = 13: IR = 7: GOSUB 8115 'ASSIGN NAVIGATORS
5670       RL$=" NO MASTERS ": RL = 18: IR = 18: GOSUB 8115 'ASSIGN NO EDUCATION
5675       RL$=" USAFA GRAD ": RL = 19: IR = 9: GOSUB 8115 'ASSIGN USAFA GRADS
5680       RL$=" CAPTAINS ": RL = 18: IR = 14: GOSUB 8115 'ASSIGN CAPTAINS
5685       RL$=" SR ORG EXP": RL = 21: IR = 16: GOSUB 8115 'ASSIGN SR ORG EXP
5690       RL$=" ALL OTHERS": RL = Ø: IR = Ø: GOSUB 8115    'ASSIGN REMAINING
5695       GOSUB 635Ø                                            'OUTPUT STATS TO SMSS
5700       GOTO 83Ø5                                             'ALL DONE
5705 REM SELECT SENIOR STAFF
5710 IF MIX <> 1 GOTO 5815
5715   CC = Ø
5720     FOR I = 1 TO 2ØØ
5725         GET #4,I
5730         GET #5,I
5735         IF IO$ = "Y" THEN GOTO 581Ø
5740         IF NOLINE$ = "Y" THEN GOTO 581Ø
5745         IF USAF$ <> "Y" GOTO 581Ø
5750         IF CC > Ø THEN GOTO 578Ø
5755               LSET CC$ = "Y"
5760               FOR K = 1 TO MU%
```

```
5765                IF  VAL(WING$(K,3)) = 1 THEN LSET AWING$ = WING$(K,1)
5770               NEXT K
5775               GOTO 5795
5780            LSET SRO$ = "Y"
5785            IF CC > MU% THEN GOTO 5815
5790               LSET AWING$ = WING$(CC,1)
5795            CC = CC + 1
5800         PUT #4,I
5805         PUT #5,I
5810     NEXT I
5815 REM ASSIGN PEOPLE TO WINGS
5820 REM ******* RETRIEVE  STAT & RULES
5825     OPEN "O", #2, "F:SMSERROR.DAT"
5830     OPEN "I", #1, "F:XTRIAL1.DAT"
5835     OPEN "R", #4, "F:SMSTDNT1.DAT"
5840     OPEN "R", #5, "F:SMSTDNT2.DAT"
5845 FIELD #4, 27 AS SNAME$,9 AS SSN$,4 AS STN$,6 AS DOR$,2 AS MIX1$,2 AS MIX2$,
2 AS MIX3$,2 AS MIXX$,1 AS AWING$,1 AS USAF$,1 AS NOED$,1 AS HORG$,1 AS PILOT$,
 AS NAV$,1 AS SING$,1 AS AFA$,1 AS NAVY$,1 AS ARMY$,1 AS RES$,1 AS RACE$,1 AS FI
M$,1 AS RNK$
5850 FIELD #5,1 AS NOLINE$,1 AS SRPME$,1 AS TOPER$,1 AS COMM$,1 AS TOPS$,1 AS S
PS$,1 AS PPBS$,1 AS ACQLOG$,1 AS SL1$,1 AS SL2$,1 AS SL3$,1 AS SLX$,1 AS ASL1$,
 AS ASL2$,1 AS ASL3$,1 AS ASLX$,1 AS SOS$,1 AS ARI$,1 AS SRO$,1 AS CC$,1 AS IO$,
6 AS PAFSC$
5855      XT = TIME
5860      XT = XT - (INT(XT/100)*100)
5865      FOR I = 1 TO XT: X = RND: NEXT I
5870      X = X * 10000: RANDOMIZE X
5875 REM -----------------------------------------------------
5880      IF SFLG = 1 THEN GOTO 6060
5885     PRINT TAB(10);"RETRIEVING STATISTICS & RULES ";
5890     FOR I = 0 TO 18
5895         PRINT ".";
5900         FOR J = 0 TO 5
5905             FOR K = 0 TO 12
5910                 INPUT #1, STAT(I,J,K)
5915             NEXT K
5920         NEXT J
5925     NEXT I
5930     FOR I = 0 TO 5: PRINT ":";
5935         FOR J = 0 TO 12
5940             FOR K = 0 TO 15
5945                 FOR L = 0 TO 3
5950                     INPUT #1, SEMI(I,J,K,L)
5955                 NEXT L
5960             NEXT K
5965         NEXT J
5970     NEXT I
5975     CLOSE #1
5980 REM * RETRIEVE SCHOOL DATA **
5985     OPEN "I", #1, "F:SMSCHOOL.DAT"
5990     INPUT #1, SCHOOL$, MUNIT$, SUNIT$, MU%, SU%
5995     FOR I = 1 TO MU%
```

```
6ØØØ        INPUT #1, WINGS$(I,1),WING$(I,2),WING$(I,3),WING$(I,4),WING$(I,5),
                      WING$(I,6)
6ØØ5    PRINT "W";
6Ø1Ø    NEXT I
6Ø15    CLOSE #1
6Ø2Ø    REM      **** RETRIEVE RULES DATA ******
6Ø25    OPEN "I", #1, "F:SMRULE.DAT"
6Ø3Ø    FOR I = 1 TO 22
6Ø35        INPUT #1, RULE$(I)
6Ø4Ø    NEXT I
6Ø45    PRINT "R";
6Ø5Ø    CLOSE #1
6Ø55    STDNT = STAT(Ø,Ø,Ø)
6Ø6Ø    RETURN
6Ø65 REM   ************** REMOVING STUDENTS FROM SEMINAR ASSIGNMENT *************
6Ø7Ø    IF JJ = Ø THEN STAT(Ø,JJ,Ø)=STAT(Ø,JJ,Ø) - 1
6Ø75    FOR MM = SS TO SEMI(JJ,KK,Ø,Ø)
6Ø8Ø            SEMI(JJ,KK,MM,Ø) = SEMI(JJ,KK,MM+1,Ø)
6Ø85    NEXT MM
6Ø9Ø    SEMI(JJ,KK,Ø,Ø) = SEMI(JJ,KK,Ø,Ø) - 1
6Ø95    STAT(Ø,JJ,KK) = STAT(Ø,JJ,KK) - 1
61ØØ            IF COMM$  = "Y" THEN STAT(1,JJ,KK) = STAT(1,JJ,KK) - 1
61Ø5            IF PPBS$  = "Y" THEN STAT(2,JJ,KK) = STAT(2,JJ,KK) - 1
611Ø            IF TOPS$  = "Y" THEN STAT(3,JJ,KK) = STAT(3,JJ,KK) - 1
6115            IF SOPS$  = "Y" THEN STAT(4,JJ,KK) = STAT(4,JJ,KK) - 1
612Ø            IF ACQLOG$  = "Y" THEN STAT(5,JJ,KK) = STAT(5,JJ,KK) - 1
6125            IF PILOT$ = "Y" THEN STAT(6,JJ,KK) = STAT(6,JJ,KK) - 1
613Ø            IF NAV$   = "Y" THEN STAT(7,JJ,KK) = STAT(7,JJ,KK) - 1
6135            IF SING$  = "Y" THEN STAT(8,JJ,KK) = STAT(8,JJ,KK) - 1
614Ø            IF AFA$   = "Y" THEN STAT(9,JJ,KK) = STAT(9,JJ,KK) - 1
6145            IF ARMY$  = "Y" THEN STAT(1Ø,JJ,KK) = STAT(1Ø,JJ,KK) - 1
615Ø            IF RES$="Y" OR NAVY$="Y" THEN STAT(11,JJ,KK) = STAT(11,JJ,KK)
6155            IF RACE$    ="Y" THEN STAT(12,JJ,KK) = STAT(12,JJ,KK) - 1
616Ø            IF FEM$    ="Y" THEN STAT(13,JJ,KK) = STAT(13,JJ,KK) - 1
6165            IF RNK$   = "Y" THEN STAT(14,JJ,KK) = STAT(14.JJ,KK) - 1
617Ø            IF NOLINE$ ="Y" THEN STAT(15,JJ,KK) = STAT(15,JJ,KK) - 1
6175            IF HORG$  = "Y" THEN STAT(16,JJ,KK) = STAT(16,JJ,KK) - 1
618Ø            IF ARI$ ="Y" OR SOS$="Y" THEN STAT(17,JJ,KK) = STAT(17,JJ,KK) -
6185            IF NOED$= "Y" THEN STAT(18,JJ,KK) = STAT(18,JJ,KK) - 1
619Ø RETURN
6195    REM ************** RECORD STATISTICS ***********************************
62ØØ            IF JJ <> Ø THEN STAT(Ø,JJ,Ø)=STAT(Ø,JJ,Ø) + 1
62Ø5            IF KK = Ø GOTO 6245
621Ø            FOR MM = 1 TO 15
6215                IF SEMI(JJ,KK,MM,Ø) <> Ø THEN GOTO 624Ø
622Ø                    SEMI(JJ,KK,MM,Ø)=SI: SEMI(JJ,KK,Ø,Ø)=SEMI(JJ,KK,Ø,Ø)+1
6225                    SEMI(JJ,KK,MM,1)=VAL(MIX1$): SEMI(JJ,KK,MM,2)=VAL(MIX2$
623Ø                    SEMI(JJ,KK,MM,3)=VAL(MIX3$)
6235            GOTO 6245
624Ø            NEXT MM
6245            STAT(Ø,JJ,KK) = STAT(Ø,JJ,KK) + 1
625Ø            IF COMM$  = "Y" THEN STAT(1,JJ,KK) = STAT(1,JJ,KK) + 1
6255            IF PPBS$  = "Y" THEN STAT(2,JJ,KK) = STAT(2,JJ,KK) + 1
626Ø            IF TOPS$  = "Y" THEN STAT(3,JJ,KK) = STAT(3,JJ,KK) + 1
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6265            IF SOPS$  = "Y" THEN STAT(4,JJ,KK) = STAT(4,JJ,KK) + 1
6270            IF ACQLOG$  = "Y" THEN STAT(5,JJ,KK) = STAT(5,JJ,KK) + 1
6275            IF PILOT$ = "Y" THEN STAT(6,JJ,KK) = STAT(6,JJ,KK) + 1
6280            IF NAV$   = "Y" THEN STAT(7,JJ,KK) = STAT(7,JJ,KK) + 1
6285            IF SING$  = "Y" THEN STAT(8,JJ,KK) = STAT(8,JJ,KK) + 1
6290            IF AFA$   = "Y" THEN STAT(9,JJ,KK) = STAT(9,JJ,KK) + 1
6295            IF ARMY$  = "Y" THEN STAT(10,JJ,KK) = STAT(10,JJ,KK) + 1
6300            IF RES$="Y" OR NAVY$="Y" THEN STAT(11,JJ,KK) = STAT(11,JJ,K
6305            IF RACE$    ="Y" THEN STAT(12,JJ,KK) = STAT(12,JJ,KK) + 1
6310            IF FEM$    ="Y" THEN STAT(13,JJ,KK) = STAT(13,JJ,KK) + 1
6315            IF RNK$   = "Y" THEN STAT(14,JJ,KK) = STAT(14,JJ,KK) + 1
6320            IF NOLINE$ ="Y" THEN STAT(15,JJ,KK) = STAT(15,JJ,KK) + 1
6325            IF HORG$  = "Y" THEN STAT(16,JJ,KK) = STAT(16,JJ,KK) + 1
6330            IF ARI$ ="Y" OR SOS$="Y" THEN STAT(17,JJ,KK) = STAT(17,JJ,KK
6335            IF NOED$= "Y" THEN STAT(18,JJ,KK) = STAT(18,JJ,KK) + 1
6340    RETURN
6345    REM *************** END STATISTICS ***********************************
6350 REM ********** OUTPUT  STATISTICS **********************************
6355    PRINT TAB(10);"OUTPUTING STATISTICS & SEMINAR ASSIGNMENTS"
6360    OPEN "O", #1, "F:XTRIAL1.DAT"
6365    FOR I = 0 TO 18
6370        FOR J = 0 TO 5
6375            FOR K = 0 TO 12
6380                PRINT #1, STAT(I,J,K)
6385            NEXT K
6390        NEXT J
6395    NEXT I
6400    FOR I = 0 TO 5
6405        FOR J = 0 TO 12
6410            FOR K = 0 TO 15
6415                FOR L = 0 TO 3
6420                    PRINT #1, SEMI(I,J,K,L)
6425                NEXT L
6430            NEXT K
6435        NEXT J
6440    NEXT I
6445    CLOSE #1
6450 RETURN
6455 REM        ****** RANDOMLY ALLOCATE CHARACTERISTICS TO EACH SEMINAR ***
6460    PRINT TAB(10);"ALLOCATE SLOTS TO SEMINARS"
6465    FOR J = 1 TO MU%
6470        PRINT TAB(10);J;
6475        GOSUB 6645
6480        FOR I = 0 TO 18
6485            PRINT ".";
6490            TA = STAT(I,J,0) / NS                       'TEMPORARY ALLOCATION
6495            IF TA < 1 THEN TA = 1
6500            FOR K = 1 TO NS
6505                TX = K
6510                IF K + FS -1 = MS THEN TX = LS - FS + 1
6515            IF I=11 AND ALOT(10,J,TX)>1 AND STAT(I,J,0)/NS<1 THEN GOTO 65
6520                ALOT(I,J,TX) = INT(TA)                  'GIVE SEMINAR FAIR S
6525            NEXT K
6530            IF INT(((TA-INT(TA))*NS)+.5) = 0 THEN GOTO 6560
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6535            FOR L = 1 TO INT(((TA-INT(TA))*NS)+.5)  'GIVE OUT REMAINING
6540                GOSUB 6580                          'ASSIGN TSEM
6545                IF ALOT(I,J,PS) > TA THEN GOTO 6540
6550                    ALOT(I,J,PS) = ALOT(I,J,PS) + 1
6555            NEXT L
6560        NEXT I
6565        PRINT
6570    NEXT J
6575 RETURN
6580 REM        ******* RANDOMLY ASSIGN TEMPORARILY TO SEMINAR TSEM ********
6585    IF TRONS > 1 THEN PRINT " RND A "
6590    RS = RND
6595    FOR LL = 1 TO NS
6600        IF RS > LL/NS GOTO 6625
6605            PS = LL
6610            TSEM = FS + LL - 1
6615            IF TSEM = MS THEN TSEM = LS: PS = NS+1
6620            GOTO 6630
6625    NEXT LL
6630    KK = PS
6635    JJ = J
6640 RETURN
6645 REM        ****** GET SEMINAR DATA FOR WING ****************************
6650    FS = VAL(WING$(J,4))                            'FIRST SEMINAR IN WI
6655    LS = VAL(WING$(J,5))                            'LAST SEMINAR IN WIN
6660    MS = VAL(WING$(J,6))                            'MISSING SEMINAR IN
6665    NS = VAL(WING$(J,2))                            ' # SEMINARS IN WING
6670    TS = STAT(Ø,J,Ø)                                'TOTAL STUDENTS IN W
6675 RETURN
6680 REM        *********** FIND CORRECT WING PERSON IS ALREADY ASSIGNED TO
6685    FOR J = 1 TO MU%
6690        IF AWING$ <> WING$(J,1) GOTO 6705
6695            GOSUB 6645
6700            GOTO 6710
6705    NEXT J
6710    JJ = J
6715 RETURN
6720 REM        ********** FIND OFSET FOR ASSIGNED STUDENTS ****************
6725    IF MIX = 1 THEN TSEM = VAL(MIX1$)
6730    IF MIX = 2 THEN TSEM = VAL(MIX2$)
6735    IF MIX = 3 THEN TSEM = VAL(MIX3$)
6740    IF MIX >=4 THEN TSEM = VAL(MIXX$)
6745    IF TSEM = Ø THEN GOTO 6760
6750    KK = TSEM - FS + 1
6755    IF TSEM = MS THEN COSUB 6580
6760 RETURN
6765 REM        ******** CHECK ON PREVIOUSLY ASSIGNED STUDENTS *************
6770    PCF = Ø                                         'RULE CHANGE FLAG
6775    PC = Ø                                          'RETRY COUNT
6780    CN = Ø                                          'PREV ASSIGNED WITH
6785    IF RULE$(8) = "D" GOTO 6810
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679Ø    IF TSEM = VAL(MIX1$) GOTO 686Ø
6795    IF TSEM = VAL(MIX2$) GOTO 686Ø
68ØØ    IF TSEM = VAL(MIX3$) GOTO 686Ø
68Ø5    IF TSEM = VAL(MIXX$) GOTO 686Ø
681Ø    IF SEMI(JJ,KK,Ø,Ø) < 1 GOTO 692Ø              'NO ONE ASSIGNED YET
6815    FOR AB = 1 TO SEMI(JJ,KK,Ø,Ø)
682Ø        IF VAL(MIX1$) = Ø GOTO 692Ø
6825            IF VAL(MIX1$) = SEMI(JJ,KK,AB,1) THEN CN = CN + 1
683Ø        IF VAL(MIX2$) = Ø GOTO 685Ø
6835            IF VAL(MIX2$) = SEMI(JJ,KK,AB,2) THEN CN = CN + 1
684Ø        IF VAL(MIX3$) = Ø GOTO 685Ø
6845            IF VAL(MIX3$) = SEMI(JJ,KK,AB,3) THEN CN = CN + 1
685Ø    NEXT AB
6855    IF CN <= VAL(RULE$(9)) GOTO 692Ø
686Ø        REM * CAN NOT DO - RETRY NEW SEMINAR *
6865            IF TRONS > 1 THEN PRINT "CHECK SHOWS ";CN;" PREV CLASSMATES";
687Ø            IF TRONS > 1 THEN PRINT " FOR ";SNAME$;SI;" IN SEMINAR ";TSEM
6875            SASN$ = "N"
688Ø            IF ARFLAG$ = "N" THEN GOTO 697Ø
6885        GOSUB 658Ø                                 'ASSIGN TO TSEM
689Ø        PC = PC + 1
6895        IF PC <= 2Ø GOTO 678Ø
69ØØ            PRINT "*** ERROR - UNABLE TO ASSIGN ";SNAME$;" TO SEMINAR WITH
69Ø5            PRINT "            LESS THAN ";RULE$(9);" PREVIOUS CLASSMATES"
691Ø            RULE$(9) = STR$(VAL(RULE$(9)) + 1):    PCF = PCF + 1
6915            GOTO 6775
692Ø        REM   ************* ASSIGN TO SEMINAR *************
6925        IF PCF > Ø THEN PRINT #2,CHR$(34);SNAME$;" # ";SI;" ASSIGNED TO SE
 ";TSEM;" WITH ";PCF+VAL(RULE$(9));" PREVIOUS CLASSMATES";CHR$(34)
693Ø        IF PCF > Ø THEN RULE$(9) = STR$(VAL(RULE$(9)) - PCF): PCF = Ø
6935            IF TSEM < 1Ø THEN Z = 1 ELSE Z = 2
694Ø            IF MIX = 1 THEN LSET MIX1$ = MID$(STR$(TSEM),Z,2)
6945            IF MIX = 2 THEN LSET MIX2$ = MID$(STR$(TSEM),Z,2)
695Ø            IF MIX = 3 THEN RSET MIX3$ = MID$(STR$(TSEM),Z,2)
6955            IF MIX >= 4 THEN RSET MIXX$ = MID$(STR$(TSEM),Z,2)
696Ø        GOSUB 6195
6965        SASN$ = "Y"
697Ø RETURN
6975 REM        ********** ASSIGN SL & ASL TO EACH SEMINAR *****************
698Ø    PRINT TAB(1Ø);"ASSIGNING SL & ASL"
6985    FOR J = 1 TO MU%
699Ø        GOSUB 6645
6995        SL(J) = NS
7ØØØ        ASL(J) = NS
7ØØ5    NEXT J
7Ø1Ø        ARFLAG$ = "N"
7Ø15    FOR SSI = 1 TO STDNT
7Ø2Ø    SI = SSI
7Ø25    GET #4,SI
7Ø3Ø    GET #5,SI
7Ø35        IF IO$ = "Y" GOTO 719Ø
7Ø4Ø        IF ARI$ = "Y" GOTO 719Ø
7Ø45        IF SOS$ = "Y" AND MIX < 3 THEN GOTO 719Ø
7Ø5Ø        IF MIX = 1 AND NOLINE$ = "Y" GOTO 719Ø
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7055         IF NOLINE$ = "Y" AND PAFSC$ = "       " THEN GOTO 7190
7060         IF CC$ = "Y" OR SRO$ = "Y" THEN GOTO 7190
7065          IF SL1$ = "Y" GOTO 7190                     'SEE IF PREVIOUSLY AN
7070          IF SL2$ = "Y" GOTO 7190                     'SEE IF PREVIOUSLY AN
7075          IF SL3$ = "Y" GOTO 7190                     'SEE IF PREVIOUSLY AN
7080          IF MIX = 1 AND USAF$ <> "Y" GOTO 7115
7085          GOSUB 6680                                  'FIND CORRECT WING
7090          SSL = 0
7095          IF SL(J) < 1 GOTO 7115                      'DONE ASSIGNING SL &
7100          IF SL(J) <= 2 GOTO 7355
7105                X = 0
7110                GOTO 7285
7115     REM ASSIGN ASL'S
7120          IF ASL1$ = "Y" GOTO 7190
7125          IF ASL2$ = "Y" GOTO 7190
7130          IF ASL3$ = "Y" GOTO 7190
7135          GOSUB 6680
7140          SSL = 1
7145          IF ASL(J) >= 1 GOTO 7175
7150             FOR X1 = 1 TO MU%
7155                IF ASL(X1) = 0 GOTO 7165
7160                GOTO 7190
7165             NEXT X1
7170             GOTO 7195
7175          IF ASL(J) <= 2 GOTO 7355
7180                X = 1
7185                GOTO 7285
7190     NEXT SSI
7195     REM - ALL SL'S AND ASL'S ASSIGNED
7200     ARFLAG$ = "Y"
7205 RETURN
7210 REM         *********** UPDATE STUDENT RECORDS *******************
7215     IF SL(J) < 1 GOTO 7245
7220        IF MIX = 1 THEN LSET SL1$ = "Y"
7225        IF MIX = 2 THEN LSET SL2$ = "Y"
7230        IF MIX = 3 THEN LSET SL3$ = "Y"
7235        IF MIX >=4 THEN LSET SLX$ = "Y"
7240        GOTO 7270
7245     REM   UPDATE ASL
7250        IF MIX = 1 THEN LSET ASL1$ = "Y"
7255        IF MIX = 2 THEN LSET ASL2$ = "Y"
7260        IF MIX = 3 THEN LSET ASL3$ = "Y"
7265        IF MIX >=4 THEN LSET ASLX$ = "Y"
7270     PUT #4,SI
7275     PUT #5,SI
7280 RETURN
7285 REM         ********* SL/ASL CHECK FOR SOMEONE ALREADY THERE ***********
7290             GOSUB 6580                                 'RANDOMLY ASSIGN
7295             IF TRONS > 1 THEN PRINT "J,PS,TSEM ";J,PS,TSEM,SI
7300             IF SEMI(J,PS,0,0) > X GOTO 7290            'ALREADY SOMEONE THERE
7305             JJ = J
7310             KK = PS
```

```
7315            GOSUB 6765                                      'CHECK ON CONSTRAINTS
7320            IF SASN$ = "N" GOTO 7290                        'TRY AGAIN
7325               IF SL(J)>Ø THEN ASG$="SL" ELSE ASG$="ASL"
7330               GOSUB 7210                                   'UPDATE RECORDS
7335               IF TRONS > Ø THEN PRINT "ASSIGNING ";SNAME$;" # =";SI;" AS "
7340               IF TRONS > Ø THEN PRINT ASG$;" FOR SEMINAR = ";TSEM
7345               IF SL(J) > Ø THEN SL(J) = SL(J)-1 ELSE ASL(J) = ASL(J)-1
7350               GOTO 7190                                    'NEXT RECORD
7355            FOR LY = 1  TO NS
7360               LX = LY: IF MS = (FS + LX -1) THEN LX = NS + 1
7365               IF SEMI(J,LX,Ø,Ø) > X GOTO 74ØØ
7370                    TSEM = FS + LX - 1
7375                    JJ = J
7380                    KK = LX
7385                    GOSUB 6765                              'CHECK PREV CLASSMATES
7390                    IF SASN$ = "N" GOTO 74ØØ
7395                    GOTO 733Ø
74ØØ            NEXT LY
74Ø5            REM - A SLOT IS LEFT BUT INDIVIDUAL CANNOT FILL IT
741Ø               IF SSL = Ø THEN GOTO 7115                    'TRY TO USE AS ASL
7415               GOTO 719Ø
742Ø REM        *************** END CHECK ***********************************
7425 REM        *************** POST IO'S ***********************************
743Ø    PRINT TAB(1Ø);"POSTING IO'S"
7435    IF RULE$(6) = "X" GOTO 749Ø                             'NO IO'S THIS MIX
744Ø    IF RULE$(6) = "D" GOTO 749Ø                             'REASSIGN LIKE OTHERS
7445    FOR SSI = 1 TO STDNT
745Ø        SI = SSI
7455        GET #4,SI
746Ø        GET #5,SI
7465        IF IO$ <> "Y" GOTO 7485                             'NOT AN IO
747Ø            GOSUB 672Ø                                      'FIND RIGHT SEMINAR
7475            GOSUB 6195                                      'UPDATE STATS
748Ø            IF TRONS > Ø THEN PRINT "ASSIGN IO ";SNAME$;"TO ";TSEM
7485    NEXT SSI
749Ø RETURN
7495 REM        ******** POST OR ASSIGN ARI/SOS ****************************
75ØØ    SA = Ø
75Ø5    PRINT TAB(1Ø);"ASSIGNING ARI/SOS STUDENTS"
751Ø    IF RULE$(4) = "D" AND RULE$(5) = "D" GOTO 7685  'TREAT LIKE OTHERS
7515    IF RULE$(4) = "D" OR RULE$(5) = "D" THEN SA = 1
752Ø    ARI = STAT(17,Ø,Ø)
7525    FOR SSI = 1 TO STDNT
753Ø        SI = SSI
7535        IF ARI < 1 GOTO 7685                                'DONE
754Ø        GET #4,SI
7545        GET #5,SI
755Ø        GOSUB 668Ø
7555        IF ARI$ = "Y" OR SOS$ = "Y" THEN GOTO 756Ø ELSE GOTO 767Ø
756Ø            GOSUB 672Ø
7565        IF TSEM > Ø THEN GOTO 76Ø5
757Ø        IF ARI$ = "Y" AND RULE$(4) = "D" THEN GOTO 7585
```

```
7575        IF SOS$ = "Y" AND RULE$(5) = "D" THEN GOTO 7585
7580        GOTO 7615
7585            IF SA = 1 GOTO 7670                          'DONT ASSIGN YET
7590            GOSUB 6580                                   'ASSIGN TSEM
7595            IF STAT(17,JJ,KK) >= ALOT(17,JJ,KK) THEN GOTO 7590
7600            GOTO 7645
7605            IF TRONS > Ø THEN PRINT SNAME$;" ALREADY ASSIGNED TO ";TSEM
7610            GOTO 7670
7615        IF MIX > 1 THEN TSEM = VAL(MIX1$):  GOTO 7640
7620        FOR I = 1 TO NS
7625            IF STAT(17,J,I) = Ø AND STAT(Ø,J,I) < 4 THEN GOTO 7635
7630        NEXT I
7635            TSEM = FS + I - 1
7640            GOSUB 6750                                   'FIND OFFSET
7645            GOSUB 6935                                   'LSET MIX? & REC STAT
7650            GOSUB 7270                                   'WRITE OUT RECORD
7655            ARI = ARI - 1
7660            IF TRONS > Ø THEN PRINT "ASSIGN ";SNAME$;" TO ";TSEM
7665            IF ARI < 1 GOTO 7675
7670    NEXT SSI
7675    PRINT
7680    IF SA = 1 THEN SA = Ø: GOTO 7525
7685 RETURN
7690 REM        *********** SKILLS SELECTION SUBROUTINE ******      ***
7695    EX = Ø:  LC = Ø: LCC = Ø: NCC = Ø
7700    GOSUB 6720
7705    CQ = Ø
7710    IF TSEM > Ø GOTO 8105                                'ALREADY ASSIGNED
7715            GOSUB 6680                                   'FIND WING DATA
7720            GOSUB 658Ø                                   'ASSIGN TO TSEM
7725            IF STAT(Ø,JJ,KK) >= ALOT(Ø,JJ,KK) GOTO 7720 'ALREADY FILLED
7730            CQ = CQ + 1
7735            IF CQ > 3Ø THEN CQ = Ø: GOTO 7805
7740            IF STAT(IR,JJ,KK) >= ALOT(IR,JJ,KK)+EX GOTO 7720 'ALREADY FIL
7745            GOSUB 6765                                   'CHECK RESTRICT/UPDAT
7750            IF SASN$ = "Y" GOTO 7775                     'ASSIGN THIS SEMINAR
7755               CP = CP + 1                               'NUM OF BAD TRIES
7760               IF SWC = 1 GOTO 8065                      'EXCH DID NOT WORK
7765               IF CP > 1Ø GOTO 78Ø5                      'EXCHANGE STUDENTS
7770               GOTO 772Ø                                 'REASSIGN
7775            GOSUB 727Ø                                   'WRITE OUT RECORD
7780    IF TRONS > Ø THEN PRINT SNAME$;SI;"  IR= ";IR;"ASSIGNED TO SEM ";TSEM
7785    IF TRONS > 1 THEN PRINT "J=";JJ;"  KK=";KK;"  STAT=";STAT(IR,JJ,KK);
7790    IF TRONS > 1 THEN PRINT "  ALOT=";ALOT(IR,JJ,KK);" CP=";CP
7795            IF SWC = 1 GOTO 78Ø5
7800            GOTO 81Ø5
7805    REM  - TRY EXCHANGING STUDENTS ALREADY ASSIGNED
7810    IF SWC = 1 GOTO 8Ø3Ø
7815    IF SWC > 1 GOTO 795Ø
7820    FOR III = 1 TO NS
7825        SS = SEMI(JJ,III,Ø,Ø) - LCC
```

```
7830        IF SS <= 2 GOTO 7950                         'ONLY SL/ASL ASSIGNED
7835        SR = SEMI(JJ,III,SS,Ø)                       'GET LAST ASSIGNED STU
7840            GET #4,SR
7845            GET #5,SR
7850        IF IR = 1 AND COMM$ = "Y" THEN GOTO 7985
7855        IF IR = 2 AND PPBS$ = "Y" THEN GOTO 7985
7860        IF IR = 3 AND TOPS$ = "Y" THEN GOTO 7985
7865        IF IR = 4 AND SOPS$ = "Y" THEN GOTO 7985
7870        IF IR = 5 AND ACQLOG$ = "Y" THEN GOTO 7985
7875        IF IR = 6 AND PILOT$ = "Y" THEN GOTO 7985
7880        IF IR = 7 AND NAV$ = "Y" THEN GOTO 7985
7885        IF IR = 8 AND SING$   = "Y" THEN GOTO 7985
7890        IF IR = 9 AND AFA$   = "Y" THEN GOTO 7985
7895        IF IR = 1Ø AND ARMY$ = "Y" THEN GOTO 7985
79ØØ        IF IR = 11 AND RES$ = "Y" THEN GOTO 7985
79Ø5        IF IR = 11 AND NAVY$ = "Y" THEN GOTO 7985
791Ø        IF IR = 12 AND RACE$     = "Y" THEN GOTO 7985
7915        IF IR = 13 AND FEM$    = "Y" THEN GOTO 7985
792Ø        IF IR = 14 AND RNK$    = "Y" THEN GOTO 7985
7925        IF IR = 15 AND NOLINE$    = "Y" THEN GOTO 7985
793Ø        IF IR = 16 AND HORG$    = "Y" THEN GOTO 7985
7935        IF IR = 17 AND ARI$    = "Y" THEN GOTO 7985
794Ø        IF IR = 18 AND NOED$    = "Y" THEN GOTO 7985
7945        IF IR = Ø GOTO 7985
795Ø    NEXT III
7955    LC = LC + 1: IF LC<= 1 GOTO 798Ø
796Ø    IF IR = Ø OR IR = 6 OR IR = 7 THEN LCC = LC - 1 ELSE LC = LC + 1
7965    IF NCC > 1 THEN RULE$(9) = STR$(VAL(RULE$(9))+1): PCF =PCF+1:LC=Ø:NCC=Ø
797Ø    IF LC > 2 THEN EX = EX + 1: LCC = LCC-2: NCC = NCC + 1
7975    IF LCC < Ø THEN LCC = Ø
798Ø    GOTO 782Ø
7985    REM     --- SWAP SI & RS ----------
799Ø    IF TRONS > Ø THEN PRINT "EXCHANGING ";SI;" FOR ";SR
7995    PS = III: KK = III: JJ = J
8ØØØ    TH = SI: SI = SR
8ØØ5    GET #4,SI: GET #5,SI
8Ø1Ø    SWC = 1: TSEM = FS+III-1
8Ø15    GOSUB 6Ø65                                       'REMOVE SR FROM SEM
8Ø2Ø    SI = TH: GET #4,SI: GET #5,SI
8Ø25    GOTO 7745                                        'TRY SI IN SR'S SLOT
8Ø3Ø    REM --------NOW FIND A PLACE FOR THE GUY YOU REPLACED ---
8Ø35    SWC = 2
8Ø4Ø    SI = SR
8Ø45    CP = Ø
8Ø5Ø    GET #4,SI
8Ø55    GET #5,SI
8Ø6Ø    GOTO 772Ø                                        'TRY REASSIGN TO VACANT
8Ø65    REM ------ DID NOT FIT TRY SOMEONE ELSE -----
8Ø7Ø    TH = SI:  SI = SR
8Ø75    GET #4,SI: GET #5,SI
8Ø8Ø    KK = III
```

```
8Ø85    IF TRONS > Ø THEN PRINT "DIDNT WORK - REINSERT ";SNAME$;SR
8Ø9Ø    GOSUB 6195
8Ø95    SI = TH: GET #4,SI: GET #5,SI
81ØØ    GOTO 795Ø
81Ø5    SWC = Ø
811Ø RETURN
8115 REM ***************** ASSIGN REMAINING STUDENTS ***************************
812Ø    IF RULE$(RL) =  "D" THEN GOTO 8295
8125    NP = STAT(IR,Ø,Ø)
813Ø    IF TRONS > Ø THEN PRINT "ASSIGNING REMAINING "; RL$
8135    ARFLAG$ = "N"
814Ø    FOR SSI = 1 TO STDNT
8145        SI = SSI
815Ø        GET #4,SI
8155        GET #5,SI
816Ø            IF IR = Ø THEN GOTO 8255
8165            IF IR = 1 AND COMM$ <> "Y" THEN GOTO 829Ø
817Ø            IF IR = 2 AND PPBS$ <> "Y" THEN GOTO 829Ø
8175            IF IR = 3 AND TOPS$ <> "Y" THEN GOTO 829Ø
818Ø            IF IR = 4 AND SOPS$ <> "Y" THEN GOTO 829Ø
8185            IF IR = 5 AND ACQLOG$ <> "Y" THEN GOTO 829Ø
819Ø            IF IR = 6 AND PILOT$ <> "Y" THEN GOTO 829Ø
8195            IF IR = 7 AND   NAV$ <> "Y" THEN GOTO 829Ø
82ØØ            IF IR = 8  AND  SING$ <> "Y" THEN GOTO 829Ø
82Ø5            IF IR = 9  AND   AFA$ <> "Y" THEN GOTO 829Ø
821Ø            IF IR = 1Ø AND ARMY$ <> "Y" THEN GOTO 829Ø
8215            IF IR = 11 AND NAVY$ = "Y" THEN GOTO 8255
822Ø            IF IR = 11 AND RES$ <> "Y" THEN GOTO 829Ø
8225            IF IR = 12 AND  RACE$ <> "Y" THEN GOTO 829Ø
823Ø            IF IR = 13 AND   FEM$ <> "Y" THEN GOTO 829Ø
8235            IF IR = 14 AND   RNK$ <> "Y" THEN GOTO 829Ø
824Ø            IF IR = 15 AND NOLINE$ <> "Y" THEN GOTO 829Ø
8245            IF IR = 16 AND  HORG$ <> "Y" THEN GOTO 829Ø
825Ø            IF IR = 18 AND  NOED$ <> "Y" THEN GOTO 829Ø
8255            GOSUB 668Ø                                  'FIND WING DATA
826Ø            GOSUB 672Ø
8265            IF TSEM > Ø THEN PRINT SNAME$;"ALREADY ASSIGNED";TSEM: GOTO 828
827Ø        IF RULE$(RL) =  "A" THEN EX = Ø ELSE EX = 1
8275        IF RULE$(RL) =  "Z" THEN EX = 3
828Ø        GOSUB 77ØØ                                  'ASSIGN SKILLS ROUTINE
8285        NP = NP - 1: IF NP < 1 GOTO 8295
829Ø    NEXT SSI
8295 RETURN
83ØØ    ARFLAG$ = "Y"
83Ø5 REM ***************** FINISHED **********************************
831Ø CLOSE #2
8315 OPEN "I", #2, "F:SMSERROR.DAT"
832Ø FOR I=1 TO 2ØØ
8325    IF EOF(2) GOTO 8345
833Ø    INPUT #2, TMP$
8335    PRINT TMP$
```

```
8340 NEXT I
8345 SFLG = 1
8350 CLOSE
8355 CHAIN "SMSSMIXO"
8360 END
```

```
8500 REM
8505 REM ***********************************************************************
8510 REM **                                                                    *
8515 REM **     PROGRAM NAME: STUDENT MIX SOFTWARE SYSTEM (SMSS)               *
8520 REM **     FILE NAME:    SMSSMIXO.BAS      DATE:     19 FEB 1986 AM       *
8525 REM **     FUNCTION:     OUTPUT RESULTS IN ASCII TO CONDOR                *
8530 REM **     COMPUTER:     ZENITH 120        LANGUAGE: BASIC                *
8535 REM **     AUTHOR:       KEN RITCHHART                                    *
8540 REM **                                                                    *
8545 REM ***********************************************************************
8550 DIM RULE$(22), WING$(5,6), STAT(18,5,12), SL(12), ASL(12)
8555 DIM SEMI(5,12,15,3), ALOT(18,5,12)
8560 COMMON MIX, SFLG, WING$(), STAT(), SEMI(), RULE$(), FLE$, TRONS, MU%, SU%
8565 CLS: PRINT TAB(25);"SMSS OUTPUTING MIX TO CONDOR": PRINT: PRINT
8570 REM ******** PROCESS STUDENTS *********************
8575 STDNT = STAT(0,0,0)
8580    OPEN "O", #1, "F:BASICOT"
8585    OPEN "R", #4, "F:SMSTDNT1.DAT"
8590    OPEN "R", #5, "F:SMSTDNT2.DAT"
8595 FIELD #4, 27 AS SNAME$,9 AS SSN$,4 AS STN$,6 AS DOR$,2 AS MIX1$,2 AS MIX2$
2 AS MIX3$,2 AS MIXX$,1 AS AWING$,1 AS USAF$,1 AS NOED$,1 AS HORG$,1 AS PILOT$,
 AS NAV$,1 AS SING$,1 AS AFA$,1 AS NAVY$,1 AS ARMY$,1 AS RES$,1 AS RACE$,1 AS F
M$,1 AS RNK$
8600 FIELD #5,1 AS NOLINE$,1 AS SRPME$,1 AS TOPER$,1 AS COMM$,1 AS TOPS$,1 AS S
PS$,1 AS PPBS$,1 AS ACQLOG$,1 AS SL1$,1 AS SL2$,1 AS SL3$,1 AS SLX$,1 AS ASL1$,
 AS ASL2$,1 AS ASL3$,1 AS ASLX$,1 AS SOS$,1 AS ARI$,1 AS SRO$,1 AS CC$,1 AS IO$
6 AS PAFSC$
8605 KO = 1: PRINT " OUTPUTING ";
8610 FOR SSI = 1 TO STDNT
8615    IF SSI/10 >= KO THEN PRINT ".";: KO = KO + 1
8620    SI = SSI
8625    GET #4,SI: GET #5,SI
8630    OTREC$ = CHR$(34)+SNAME$+CHR$(34)+","
8635    OTREC$ = OTREC$+CHR$(34)+SSN$+CHR$(34)+","
8640    OTREC$ = OTREC$+CHR$(34)+STN$+CHR$(34)+","
8645    OTREC$ = OTREC$+CHR$(34)+DOR$+CHR$(34)+","
8650    OTREC$ = OTREC$+CHR$(34)+MIX1$+CHR$(34)+","
8655    OTREC$ = OTREC$+CHR$(34)+MIX2$+CHR$(34)+","
8660    OTREC$ = OTREC$+CHR$(34)+MIX3$+CHR$(34)+","
8665    OTREC$ = OTREC$+CHR$(34)+MIXX$+CHR$(34)+","
8670    OTREC$ = OTREC$+CHR$(34)+AWING$+CHR$(34)+","
8675    OTREC$ = OTREC$+CHR$(34)+USAF$+CHR$(34)+","
8680    OTREC$ = OTREC$+CHR$(34)+NOED$+CHR$(34)+","
8685    OTREC$ = OTREC$+CHR$(34)+HORG$+CHR$(34)+","
8690    OTREC$ = OTREC$+CHR$(34)+PILOT$+CHR$(34)+","
8695    OTREC$ = OTREC$+CHR$(34)+NAV$+CHR$(34)+","
8700    OTREC$ = OTREC$+CHR$(34)+SING$+CHR$(34)+","
8705    OTREC$ = OTREC$+CHR$(34)+AFA$+CHR$(34)+","
8710    OTREC$ = OTREC$+CHR$(34)+NAVY$+CHR$(34)+","
8715    OTREC$ = OTREC$+CHR$(34)+ARMY$+CHR$(34)+","
8720    OTREC$ = OTREC$+CHR$(34)+RES$+CHR$(34)+","
8725    OTREC$ = OTREC$+CHR$(34)+RACE$+CHR$(34)+","
8730    OTREC$ = OTREC$+CHR$(34)+FEM$+CHR$(34)+","
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```
8735     OTREC$ = OTREC$+CHR$(34)+RNK$+CHR$(34)+","
8740     OTREC$ = OTREC$+CHR$(34)+NOLINE$+CHR$(34)+","
8745     OTREC$ = OTREC$+CHR$(34)+SRPME$+CHR$(34)+","
8750     OTREC$ = OTREC$+CHR$(34)+TOPPER$+CHR$(34)+","
8755     OTREC$ = OTREC$+CHR$(34)+COMM$+CHR$(34)+","
8760     OTREC$ = OTREC$+CHR$(34)+SOPS$+CHR$(34)+","
8765     OTREC$ = OTREC$+CHR$(34)+TOPS$+CHR$(34)+","
8770     OTREC$ = OTREC$+CHR$(34)+PPBS$+CHR$(34)+","
8775     OTREC$ = OTREC$+CHR$(34)+ACQLOG$+CHR$(34)+","
8780     OTREC$ = OTREC$+CHR$(34)+SL1$+CHR$(34)+","
8785     OTREC$ = OTREC$+CHR$(34)+SL2$+CHR$(34)+","
8790     OTREC$ = OTREC$+CHR$(34)+SL3$+CHR$(34)+","
8795     OTREC$ = OTREC$+CHR$(34)+SLX$+CHR$(34)+","
8800     OTREC$ = OTREC$+CHR$(34)+ASL1$+CHR$(34)+","
8805     OTREC$ = OTREC$+CHR$(34)+ASL2$+CHR$(34)+","
8810     OTREC$ = OTREC$+CHR$(34)+ASL3$+CHR$(34)+","
8815     OTREC$ = OTREC$+CHR$(34)+ASLX$+CHR$(34)+","
8820     OTREC$ = OTREC$+CHR$(34)+SOS$+CHR$(34)+","
8825     OTREC$ = OTREC$+CHR$(34)+ARI$+CHR$(34)+","
8830     OTREC$ = OTREC$+CHR$(34)+SRO$+CHR$(34)+","
8835     OTREC$ = OTREC$+CHR$(34)+CC$+CHR$(34)+","
8840     OTREC$ = OTREC$+CHR$(34)+IO$+CHR$(34)+","
8845     OTREC$ = OTREC$+CHR$(34)+PAFSC$+CHR$(34)
8850     PRINT #1,OTREC$
8855 NEXT SSI
8860 PRINT #1,CHR$(26)
8865 CLOSE
8870 CHAIN "SMSS"
8875 END
```

```
8900 REM
8905 REM ***********************************************************************
8910 REM **
8915 REM **     PROGRAM NAME: STUDENT MIX SOFTWARE SYSTEM (SMSS)
8920 REM **     FILE NAME:    SMSSUPDT.BAS       DATE:      18 FEB 1986 AM
8925 REM **     FUNCTION:     UPDATE THE MANUAL CHANGES TO STAT & SEMI ARRAYS
8930 REM **     COMPUTER:     ZENITH 120         LANGUAGE: BASIC
8935 REM **     AUTHOR:       KEN RITCHHART
8940 REM **
8945 REM ***********************************************************************
8950 DIM TEMPIN$(44), ALOT(18,5,12)
8955 DIM WING$(5,6), STAT(18,5,12), SEMI(5,12,15,3), RULE$(22)
8960 COMMON MIX, SFLG, WING$(), STAT(), SEMI(), RULE$(), FLE$, TRONS, SU%, MU%
8965 CLS:  PRINT "                 REGISTERING MANUAL CHANGES TO SEMINARS": PRIN
8970 GOSUB 9430
8975 REM ******** PROCESS INPUT DATA *******************
8980 OPEN "I", #3, "F:BASICIF."
8985 OPEN "R", #4, "F:SMSTDNT1.DAT"
8990 OPEN "R", #5, "F:SMSTDNT2.DAT"
8995 FIELD #4, 27 AS SNAME$,9 AS SSN$,4 AS STN$,6 AS DOR$,2 AS MIX1$,2 AS MIX2
2 AS MIX3$,2 AS MIXX$,1 AS AWING$,1 AS USAF$,1 AS NOED$,1 AS HORG$,1 AS PILOT$,
 AS NAV$,1 AS SING$,1 AS AFA$,1 AS NAVY$,1 AS ARMY$,1 AS RES$,1 AS RACE$,1 AS
M$,1 AS RNK$
9000 FIELD #5,1 AS NOLINE$,1 AS SRPME$,1 AS TOPER$,1 AS COMM$,1 AS TOPS$,1 AS
PS$,1 AS PPBS$,1 AS ACQLOG$,1 AS SL1$,1 AS SL2$,1 AS SL3$,1 AS SLX$,1 AS ASL1$,
 AS ASL2$,1 AS ASL3$,1 AS ASLX$,1 AS SOS$,1 AS ARI$,1 AS SRO$,1 AS CC$,1 AS IO
6 AS PAFSC$
9005 KO = 1: PRINT: PRINT "READING ";
9010 FOR KS = 1 TO 600
9015 IF KS/10 >= KO THEN PRINT ".";: KO = KO + 1
9020     STDNT = SI
9025     FOR J = 1 TO 44
9030         IF EOF (3) THEN GOTO 9390
9035         INPUT #3, TEMPIN$(J)
9040     NEXT J
9045       LSET SNAME$ = TEMPIN$(1)
9050       LSET SSN$ = TEMPIN$(2)
9055       LSET STN$ = TEMPIN$(3)
9060       LSET DOR$  = TEMPIN$(4)
9065       LSET MIX1$ = TEMPIN$(5)
9070       LSET MIX2$ = TEMPIN$(6)
9075       LSET MIX3$ = TEMPIN$(7)
9080       LSET MIXX$ = TEMPIN$(8)
9085       LSET AWING$= TEMPIN$(9)
9090       LSET USAF$ = TEMPIN$(10)
9095       LSET NOED$ = TEMPIN$(11)
9100       LSET HORG$ = TEMPIN$(12)
9105       LSET PILOT$= TEMPIN$(13)
9110       LSET NAV$  = TEMPIN$(14)
9115       LSET SING$ = TEMPIN$(15)
9120       LSET AFA$  = TEMPIN$(16)
9125       LSET NAVY$ = TEMPIN$(17)
9130       LSET ARMY$ = TEMPIN$(18)
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9135       LSET RES$     = TEMPIN$(19)
9140       LSET RACE$    = TEMPIN$(20)
9145       LSET FEM$     = TEMPIN$(21)
9150       LSET RNK$     = TEMPIN$(22)
9155       LSET NOLINE$  = TEMPIN$(23)
9160       LSET SRPME$   = TEMPIN$(24)
9165       LSET TOPPER$  = TEMPIN$(25)
9170       LSET COMM$  = TEMPIN$(26)
9175       LSET SOPS$  =TEMPIN$(27)
9180       LSET TOPS$ = TEMPIN$(28)
9185       LSET PPBS$ = TEMPIN$(29)
9190       LSET ACQLOG$=TEMPIN$(30)
9195       LSET SL1$  = TEMPIN$(31)
9200       LSET SL2$  = TEMPIN$(32)
9205       LSET SL3$  = TEMPIN$(33)
9210       LSET SLX$  = TEMPIN$(34)
9215       LSET ASL1$ = TEMPIN$(35)
9220       LSET ASL2$ = TEMPIN$(36)
9225       LSET ASL3$ = TEMPIN$(37)
9230       LSET ASLX$ = TEMPIN$(38)
9235       LSET SOS$  = TEMPIN$(39)
9240       LSET ARI$  = TEMPIN$(40)
9245       LSET SRO$  = TEMPIN$(41)
9250       LSET CC$   = TEMPIN$(42)
9255       LSET IO$   = TEMPIN$(43)
9260       LSET PAFSC$= TEMPIN$(44)
9265       IF IO$ = "Y" AND RULE$(6) = "X" GOTO 9385
9270    REM ***** RECORD SCHOOL OVERALL STATISTICS ****************
9275       JJ = 0
9280       KK = 0
9285       GOSUB 9595
9290          IF AWING$ = " " GOTO 9335
9295            REM *** POST WING STATISTICS *****
9300             FOR J = 1 TO MU%
9305                 IF AWING$ <> WING$(J,1) GOTO 9330
9310                    JJ = J
9315                    KK = 0
9320                    GOSUB 9595
9325                    GOTO 9335
9330             NEXT J
9335    SI = SI + 1
9340    IF KS > 1 GOTO 9365
9345       IF VAL(MIX1$) > 0 THEN MIX = 1
9350       IF VAL(MIX2$) > 0 THEN MIX = 2
9355       IF VAL(MIX3$) > 0 THEN MIX = 3
9360       IF VAL(MIXX$) > 0 THEN MIX = 4
9365    GOSUB 9885
9370    GOSUB 9595
9375    PUT #4,SI
9380    PUT #5,SI
9385 NEXT KS
```

```
939Ø STDNT = SI
9395 PRINT: PRINT "PROCESSED IN ";KS-1;" STUDENTS INTO SMSS"
94ØØ PRINT  STDNT; " STUDENT RECORDS & STATISTICS UPDATED FROM MANUAL CHANGES"
94Ø5 STAT(Ø,Ø,Ø) = STDNT
941Ø REM END OF DATA INPUT
9415 GOSUB 975Ø                                         'OUTPUT STATS TO SMSS
942Ø GOTO 9865
9425 PRINT: PRINT
943Ø REM ******* INITIALIZE STAT & GET RULES
9435    PRINT "INITIALIZING ";
944Ø    FOR I = Ø TO 18
9445        PRINT ".";
945Ø        FOR J = Ø TO 5
9455            FOR K = Ø TO 12
946Ø                STAT(I,J,K) = Ø
9465            NEXT K
947Ø        NEXT J
9475    NEXT I
948Ø    FOR I = Ø TO 5
9485        FOR J = Ø TO 12
949Ø            FOR K = Ø TO 15
9495                FOR L = Ø TO 3
95ØØ                    SEMI(I,J,K,L) = Ø
95Ø5                NEXT L
951Ø            NEXT K
9515        NEXT J
952Ø    NEXT I
9525 REM * RETRIEVE SCHOOL DATA **
953Ø    OPEN "I", #1, "F:SMSCHOOL.DAT"
9535    INPUT #1, SCHOOL$, MUNIT$, SUNIT$, MU%, SU%
954Ø    FOR I = 1 TO MU%
9545        INPUT #1, WING$(I,1),WING$(I,2),WING$(I,3),WING$(I,4),WING$(I,5),
                      WING$(I,6)
955Ø    NEXT I
9555    CLOSE #1
956Ø    REM     **** RETRIEVE RULES DATA ******
9565    OPEN "I", #1, "F:SMRULE.DAT"
957Ø    FOR I = 1 TO 22
9575        INPUT #1, RULE$(I)
958Ø    NEXT I
9585    CLOSE #1
959Ø    RETURN
9595    REM *************** RECORD STATISTICS ***********************************
96ØØ            IF JJ <> O THEN STAT(Ø,JJ,Ø)=STAT(Ø,JJ,Ø) + 1
96Ø5            IF KK = Ø GOTO 965Ø
961Ø            FOR MM = 1 TO 15
9615                IF SEMI(JJ,KK,MM,Ø) <> Ø THEN GOTO 964Ø
962Ø                    SEMI(JJ,KK,MM,Ø)=SI: SEMI(JJ,KK,Ø,Ø)=SEMI(JJ,KK,Ø,Ø)+1
9625                    SEMI(JJ,KK,MM,1)=VAL(MIX1$): SEMI(JJ,KK,MM,2)=VAL(MIX2$)
963Ø                    SEMI(JJ,KK,MM,3)=VAL(MIX3$)
9635            GOTO 965Ø
964Ø            NEXT MM
9645            STAT(Ø,JJ,KK) = STAT(Ø,JJ,KK) + 1
```

```
965Ø            IF COMM$   = "Y" THEN STAT(1,JJ,KK) = STAT(1,JJ,KK) + 1
9655            IF PPBS$   = "Y" THEN STAT(2,JJ,KK) = STAT(2,JJ,KK) + 1
966Ø            IF TOPS$   = "Y" THEN STAT(3,JJ,KK) = STAT(3,JJ,KK) + 1
9665            IF SOPS$   = "Y" THEN STAT(4,JJ,KK) = STAT(4,JJ,KK) + 1
967Ø            IF ACQLOG$ ="Y" THEN STAT(5,JJ,KK) = STAT(5,JJ,KK) + 1
9675            IF PILOT$ = "Y" THEN STAT(6,JJ,KK) = STAT(6,JJ,KK) + 1
968Ø            IF NAV$    = "Y" THEN STAT(7,JJ,KK) = STAT(7,JJ,KK) + 1
9685            IF SING$   = "Y" THEN STAT(8,JJ,KK) = STAT(8,JJ,KK) + 1
969Ø            IF AFA$    = "Y" THEN STAT(9,JJ,KK) = STAT(9,JJ,KK) + 1
9695            IF ARMY$   = "Y" THEN STAT(1Ø,JJ,KK) = STAT(1Ø,JJ,KK) + 1
97ØØ            IF RES$="Y" OR NAVY$="Y" THEN STAT(11,JJ,KK) = STAT(11,JJ,KK)+1
97Ø5            IF RACE$    = "Y" THEN STAT(12,JJ,KK) = STAT(12,JJ,KK) + 1
971Ø            IF FEM$    = "Y" THEN STAT(13,JJ,KK) = STAT(13,JJ,KK) + 1
9715            IF RNK$    = "Y" THEN STAT(14,JJ,KK) = STAT(14,JJ,KK) + 1
972Ø            IF NOLINE$ ="Y" THEN STAT(15,JJ,KK) = STAT(15,JJ,KK) + 1
9725            IF HORG$   = "Y" THEN STAT(16,JJ,KK) = STAT(16,JJ,KK) + 1
973Ø            IF ARI$ ="Y" OR SOS$="Y" THEN STAT(17,JJ,KK) = STAT(17,JJ,KK) +
9735            IF NOED$   = "Y" THEN STAT(18,JJ,KK) = STAT(18,JJ,KK) + 1
974Ø RETURN
9745 REM *************** END STATISTICS ************************************
975Ø REM *********** OUTPUT  STATISTICS ************************************
9755 PRINT "     OUTPUTING STATISTICS ";
976Ø    OPEN "O", #1, "F:XTRIAL1.DAT"
9765    FOR I = Ø TO 18
977Ø        PRINT ".";
9775        FOR J = Ø TO 5
978Ø            FOR K = Ø TO 12
9785                PRINT #1, STAT(I,J,K)
979Ø            NEXT K
9795        NEXT J
98ØØ    NEXT I
98Ø5    FOR I = Ø TO 5
981Ø        PRINT ";";
9815        FOR J = Ø TO 12
982Ø            FOR K = Ø TO 15
9825                FOR L = Ø TO 3
983Ø                    PRINT #1, SEMI(I,J,K,L)
9835                NEXT L
984Ø            NEXT K
9845        NEXT J
985Ø    NEXT I
9855   CLOSE
986Ø RETURN
9865 REM ******************** DONE **************************************
987Ø SFLG = 1
9875 CHAIN "SMSS"
988Ø END
9885 REM        *********** FIND CORRECT WING PERSON IS ALREADY ASSIGNED TO ***
989Ø    IF MIX = 1 THEN TSEM = VAL(MIX1$)
9895    IF MIX = 2 THEN TSEM = VAL(MIX2$)
99ØØ    IF MIX = 3 THEN TSEM = VAL(MIX3$)
```

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9905     IF MIX >=4 THEN TSEM = VAL(MIXX$)
9910     IF TSEM = Ø THEN GOTO 997Ø
9915     FOR J = 1 TO MU%
992Ø         IF AWING$ <> WING$(J,1) GOTO 9955
9925             FS = VAL(WING$(J,4))                       'FIRST SEMINAR IN WING
993Ø             LS = VAL(WING$(J,5))                       'LAST SEMINAR IN WING
9935             MS = VAL(WING$(J,6))                       'MISSING SEMINAR IN WIN
994Ø             NS = VAL(WING$(J,2))                       ' # SEMINARS IN WING
9945             TS = STAT(Ø,J,Ø)                           'TOTAL STUDENTS IN WIN
995Ø             GOTO 996Ø
9955     NEXT J
996Ø     JJ = J
9965     KK = TSEM - FS + 1
997Ø RETURN
9975 END
```